THE IMPACT OF OUTPATIENT PRESCRIPTION DRUG COVERAGE ON TOTAL AND SPECIFIC HEALTH CARE EXPENDITURE AND SERVICE USE OF MEDICARE BENEFICIARIES, AGE SIXTY-FIVE AND OLDER

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Abstract

This research was a non-experimental, retrospective, cross-sectional, and descriptive cohort study of eligible persons, 65 years of age and older who participated in the 1992 through 1995 Medicare Current Beneficiary Survey (MCBS). The purpose was to determine the impact of outpatient prescription drug coverage on total and/or specific health care expenditure and service use of Medicare beneficiaries using data present in the MCBS Cost-and-Use data files. Specific aims examined the association between insurance coverage (Medicare, Medicare HMO, Private, Private + HMO), outpatient prescription drug coverage (no, yes), and level of generosity of prescription coverage (none, poor, fair, good) to expenditures/use. Yearly specific expenditure (dollars) and use (number of events) included Medicare-covered and non Medicare-covered services.

Results: Outpatient prescription drug coverage (yes/no) was associated with increased prescription expenditure/events. As for the effect of the prescription drug coverage generosity on health care expenditure and use, the following observations were seen in the Private insurance group:

Generosity of Rx Coverage Use/Expense	Inpatient Hospital Use/Expense	Outpatient Hospital Use/Expense	Medical Provider Use/Expense	Rx Use/Expense	Total Expense
none	Baseline	Baseline	Baseline	Baseline	Baseline
poor	+/+	/+	++/+	++/+	+
fair	++/++	/++	++/++	++/++	++
good		/+++	+/+	+/+++	+++

1) all generosity levels of prescription drug coverage were associated with increased total health care expenditures per person per year; the more generous the prescription drug coverage, the greater the expenditure, 2) "poor" and "fair" generosity levels of prescription drug coverage were associated with increased inpatient hospital expenditures and events per person per year, 3) all levels of generosity of prescription drug coverage were associated with increased medical provider with the smallest increases occurring in the "good" level, 4) all levels of generosity of prescription drug coverage were associated with increased prescription expenditures and events per person per year; with evidence of more expensive prescription events per person as generosity level increased. Within the Medicare HMO insurance group, no definitive patterns were seen in any service category except prescription events. All levels of generosity increased prescription events per person per year with the smallest increases occurring in the "good" generosity level.

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CHAPTER ONE

INTRODUCTION

The pressure to add outpatient prescription drug coverage as a Medicare benefit has gained momentum in the last decade and particularly in the last two years. Debates about it rage on—about its need, its cost, its design, and its funding (Cassel, Besdine, & Siegel, 1999; Fuchs, 1999; Soumerai & Ross-Degnan, 1999; Wilensky & Newhouse, 1999). Proponents for adding the coverage assert the benefits of pharmacotherapy for the elderly and need for coverage, especially for the near-poor elderly. Opponents of the addition cite the potential cost burden on future taxpayers due, in part, to over-utilization brought about by the effect of the coverage. While the effect of outpatient prescription drug coverage is certain to increase prescription drug use, it is not known how other areas of health care use will be affected.

This dissertation was designed to gain more insight into this relationship. This dissertation used data from the 1992-1995 Medicare Current Beneficiary Surveys (MCBS), surveys which were conducted and compiled by the Health Care Financing Administration. The approach was to search for patterns of service use and expenditure by Medicare beneficiaries with special attention placed on their insurance and prescription drug coverage status.

1.1 Relationships between insurance and service use

Figure 1. Relationships Between Supplemental Insurance and Expenditure/Service Use

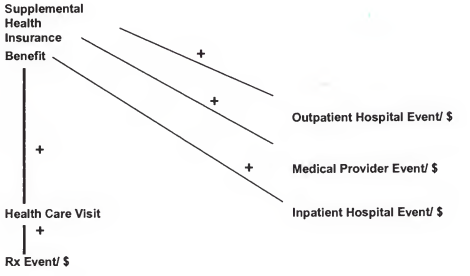


Figure 1 depicts the influences of Medicare supplemental insurance on health behavior using the event of a visit (or expenditure for the service) as a proxy for behavior. (Plus signs indicate positive relationships.) These insurance plans have been shown to increase use of many health services by their generosity of benefits and elimination of the Medicare copayments and co-insurance. In particular, these supplemental plans remove copayments for physician visits and the co-insurance of hospital visits so increases in service use in these areas are well-established (Chulis, Eppig, Hogan, Waldo, & Ross Arnett, 1993; Link, Long, & Settle, 1980; McCall, Rice, Boismier, & West, 1991). The same increase in utilization in health

service use may or may not be evident when specifically examining supplemental insurance that cover outpatient prescription drugs.

Figure 2. Relationships and Hypothesized Relationships Between Outpatient Prescription Drug Coverage and Expenditure/Service Use

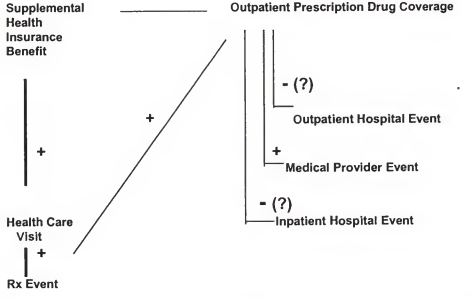


Figure 2 depicts the influences of Medicare supplemental outpatient prescription drug coverage on health behavior using the event of a visit *(or expenditure for the service)* as a proxy for behavior. Outpatient prescription drug coverage itself increases prescription drug expenditure in several ways. First, the disincentive of paying the total cost of the prescription is reduced to a copayment (or deductible) so the number of prescriptions filled (*i.e.,* events) increases. Second, the price of prescription drugs have increased over the last 15 years. Third, with the disincentive to visit a physician removed by supplementary insurance, the increased number of physician visits may generate more prescriptions (Gianfrancesco, Baines, &

Richards, 1994; Grootendorst, O'Brien, & Anderson, 1997).

Figure 2 also depicts the assumed relationship between supplemental health insurance and outpatient prescription drug coverage. The more generous the supplemental insurance coverage, the more likely that the supplemental insurance coverage includes outpatient prescription drug coverage. Additionally, the more generous (and more expensive) supplemental plan an elder chooses to purchase, either due to income or need, the more likely it is that the elder will also choose to purchase one that includes a more generous outpatient prescription drug coverage.

Accounting for the relationship between supplemental health and outpatient prescription coverage and controlling for the environment surrounding the need (*e.g.*, income, gender, age, etc.), it is reasonable to *speculate if* a prescription drug benefit reduces health care expenditure and service use in one or more of these health care categories, especially in the categories of inpatient and outpatient hospital service (Figure 2). This dissertation examines the issue by analyzing the Cost & Use expenditure and survey information from the 1992-1995 Medicare Current Beneficiary Surveys (MCBS). In this report, reference to "prescription drug coverage", or "prescriptions" refers only to outpatient prescriptions unless otherwise noted. Reference to "young-old" includes individuals 65-74 years old, "middle-old" are 75 to 84 years old, and "oldest-old" are 85 years of age and older. The term "elderly" refers to individuals 65 years of age and older. A

glossary of terms is included in this report and is located following the appendices.

CHAPTER TWO

BACKGROUND

2.1 Growth in real numbers of elderly

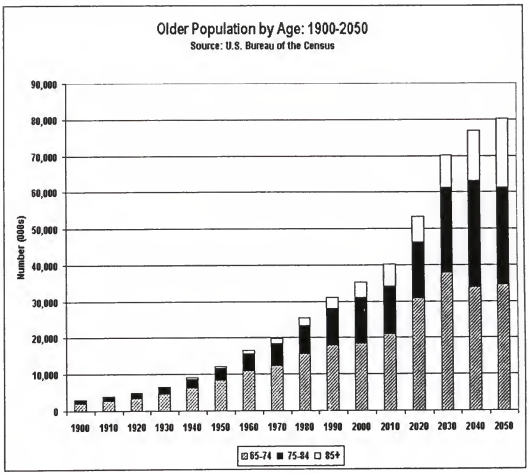
Since the 1960s, advances in pharmaceutical therapy, promotion of a healthy lifestyle, and improved access to health care services[1] have contributed to a decline in premature deaths related to acute and chronic disease (Davis & Burner, 1995; Fries, 1988; Verbrugge, 1988). This decline is reflected in an increased number of current and projected elderly (age 65-and-over) population. In 1996, the elderly numbered 33.9 million and accounted for 12.8 percent of the US population (Fowles, Duncker, Greenberg, & Madrid, 1997; S.I.S., 1998). By the year 2030, it is estimated that there will be about 70 million elders--a doubling of the population in less than 40 years--and they will account for approximately 20 percent of the US population (Davis & Burner, 1995; Fowles et al., 1997; S.I.S., 1998; Schulz, 1995).

The composition of these future elders will also change. In particular, the oldest-old cohort will become a larger fraction (Table 1). So it is not surprising that by 2030, four million elders are likely to have three or more Activities of Daily Living limitations (ADLs) and may require long-term

[1] Disparities still exist in access among some vulnerable groups, *e.g.*, race, disabled, oldest-old, ineligible (Davis & Burner, 1995; Schulz, 1995).

care services (Katz, 1983; Manton & Soldo, 1992). In terms of their expected expense on the US health care system, the care for our elderly is an important concern today for government and for society. Any program or strategy that is effective in keeping elders independent as they age and whose cost is accepted by society is of potential value. The next section demonstrates why the cost of caring for elders continues to rise.

Table 1.



2.2 Growth in health care expenditures by elderly

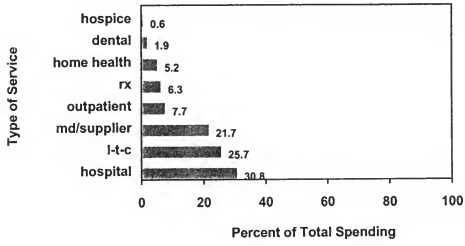
In 1994, the US public spent $831.7 billion for personal health care goods and services; this figure does NOT include administration, cost of insurance, research, etc. (Levit et al., 1996; Olin & Liu, 1998).[2] During 1994, Medicare beneficiaries (elders and disabled) accounted for 14 percent of the US population but consumed 36.5 percent of the $831.7 billion spent for health care.

Areas of personal health care expenditure can be separated into nine categories: inpatient hospital, facility (long-term stay), medical provider, outpatient hospital, outpatient prescription drugs, institution (short-term stay), home health care, dental, and hospice care. (Complete descriptions of what services each category covers are listed in the Glossary.) The expenditure breakdown of these categories is shown in Figure 3. In 1994, inpatient hospital care accounted for 338.5 Billion dollars, which was 31 percent of the yearly total expenditure. However, after removing price and population increases from the growth of hospital expenditures, there was a decline in real hospital expenditures per person in 1994 (Levit et al., 1996). Even with the decreased use of service in this

[2] "Personal health care expenditures" is defined by HCFA as the "direct consumption of health care goods and services provided by hospitals, physicians, and other suppliers of medical care and equipment...(The expenditure estimates by HCFA) include expenditures on Medicare-covered services as well as relatively expensive services not typically covered by Medicare (*e.g.*, long-term facility care and prescription drugs)(Olin & Liu, 1998).

category, hospital expenditure remains the leader in terms of dollars.

Figure 3: Distribution of Personal Health Care Spending by all Medicare Beneficiaries, by Type of Service, 1994 (Olin, 1998)



These rising expenditures are not due simply to the increasingly aged demographic structure. They are also related to demand for health care, supplemental insurance coverage, health status, policy and cost management problems, inflation, high cost of dying, and a rising Gross National Product (GNP). Additionally, the increasing and more sophisticated use of technology in health care products and service (*e.g.*, robotics, magnetic resonance imaging) elevates price (Getzen, 1992; Levit et al., 1996; McCall et al., 1991; Olin & Liu, 1998; Torrey, 1985; Wolfe & Gabay, 1987; Wolfe, 1986).

Total prescription drug expenditure have risen in the past two decades as a result of both increases in the number of prescriptions filled

and an increase in the costs of drugs dispensed (Davis, Poisal, Chulis, Zarabozo, & Cooper, 1999; Mott & Krehling, 1998). During the 1980s, prescription drug spending increased mainly due to drug manufacturers' price hikes. Different reasons account for high expenditures since the mid-1990s. "...The increase in spending has been due to a large number of new drugs coming to market, and increased use of all drugs" (Swartz, 1998). To illustrate, prescription drug expenditure increased from 1997 to 1998 by 16.6 percent. The higher prices of existing drugs accounted for 3.2 percent of the 16.6 percent. The remaining 13.4 percent was due to "the high introductory prices of new drugs and to greater numbers of prescriptions being filled" (Swartz, 1998).

Not all elders use high levels of health care; spending is concentrated among certain groups or types of elders (Rogowski, Lillard, & Kington, 1997). For example, the average health care expenditure by a 65-and-over, community-dwelling,[3] Medicare beneficiary for 1994 was $5,615. The average expenditure by a long-term facility-dwelling beneficiary was $36,519 (Olin & Liu, 1998). Any intervention or health service that is economical and can keep hospital and institutional expenses down (*e.g.*, pneumonia immunizations, osteoporosis screenings) is highly valued by

[3] "Community-dwelling" defines beneficiaries as those who reside only in the community during the year, and it includes beneficiaries who resided part of the year in the community and part of the year in a long-term care facility. It excludes beneficiaries who resided ONLY in a long-term care facility during the year.

both elders and health care payors alike. Outpatient prescription drug coverage might be considered such a service.

As spending in overall health care expenditures skews toward certain clusters of elders, *e.g.*, those in their year prior to death (Gruenberg, Tompkins, & Porell, 1989), so does prescription expenditure. Stephen Long showed how the distribution of elderly spending on prescription medicine was uneven using 1991 data compiled by HCFA. Eighteen percent of elderly spent nothing.(Long, 1994) This concurs with Eng and Lairson's 1988 study using data from the 1980 National Medical Care Utilization and Expenditure Survey (Eng & Lairson, 1988). It is slightly higher than the Chrischilles et al study using data from the 1981-1983 Established Populations for Epidemiologic Studies of the Elderly and the Rogowski et al's study using data from the 1990 Elderly Health Supplement to the Panel Study of Income Dynamics (Chrischilles et al., 1992; Rogowski et al., 1997). Long also found that 54 percent of elders spent less than $500 yearly, but the top 11 percent of elderly who spent $1,200 or more accounted for almost 45 percent of the $12 to $14 Billion prescription medicine outlay in 1991 (Long, 1994). Clearly, the elderly are not a homogeneous group when it comes to demand for either prescription medications or health care services in general.

2.3 Prescription medication use and chronic disease in the elderly

Compared to other age groups, the elderly require and consume more prescription medications (Long, 1994; Chrischilles et al., 1992). Those who have depressive symptoms, impaired physical functioning, hospitalizations, or poor self-perceived health status are most likely to take medications (Chrischilles et al., 1992). In 1994, between 83 and 87 percent of community-dwelling elderly used at least one prescribed medicine. Expressed in monetary terms, these community-dwelling elderly spent $16.3 Billion for prescriptions (Long, 1994; Olin & Liu, 1998).

The high use of prescription medications by the elderly can be explained in part by the types of chronic disease that prevail in, and the number of chronic conditions suffered by, this cohort. In the 1993 and 1994 MCBS, the eleven diseases/conditions self-reported in all beneficiaries, in order beginning with the most-reported are: arthritis, hypertension, heart disease, other type of cancer, diabetes, skin cancer, pulmonary disease, osteoporosis/broken hip, stroke, Alzheimer's, and Parkinson's. Nine out of eleven of these conditions are considered chronic. When examining the occurrence ranking of these same conditions in community-dwelling beneficiaries, the list remains the same. (The ranking of occurrence in institutionalized beneficiaries changes the list order: heart disease, Alzheimer's, hypertension, stroke, arthritis, osteoporosis/broken hip, other

type of cancer, diabetes, pulmonary disease, Parkinson's, and skin cancer) (Laschober, 1997; Olin & Liu, 1998).

The nine chronic conditions all require maintenance prescription medications for retention or improvement of health status. While there were shifts in the percentages of these conditions within the three age cohorts of elderly (65-74 years of age, 75-84 years of age, and 85-and-older), the most-occurring three chronic diseases, namely, arthritis, hypertension, and heart disease, have remained the same for most classes of elders. These three conditions often require more than one prescription medication for the condition to stabilize or improve.

This relationship between chronic disease and prescription medication expenditure was shown in two comprehensive studies done by Mueller et al. and Rogowski et al. (Mueller, Schur, & O'Connell, 1997; Rogowski et al., 1997). Mueller et al.'s study examined retrospective data from the 1987 National Medical Expenditure Survey. They found that 36 percent of the elderly had three or more chronic conditions and these 36 percent accounted for 57 percent of drug expenditures. Additionally, 41 percent of total drug expenditures by the elderly were for cardiovascular or renal drugs. In the Rogowski et al study, researchers found that elderly without chronic conditions spent an average of $353 ($182 out-of-pocket) on drugs compared with $752 ($385 out-of-pocket) for elders with one or more chronic condition. For elders with two or more chronic conditions, the

average yearly expenditure was $827 ($372 out-of-pocket) (Rogowski et al., 1997).

As age increases, it is likely that the number of chronic conditions an elder suffers increases. For example, in 1993 and 1994, approximately 69 percent of all elders had two or more chronic conditions. The distribution of chronic diseases increased in the older cohorts: 64 percent within the 65-74 year olds, 75 percent within the 75-84 year olds, and 85.5 percent within the 85-and-older elderly (Laschober, 1997; Olin & Liu, 1998). These numbers reveal the need and suggest why prescription medications play such an important role in elders' health care regimen. While it is this researcher's opinion that chronic disease is the major reason for high prescription use, prescription use is a dynamic process and other reasons for high prescription use should be noted: density of physician supply, direct-to-consumer advertising, access-to-care, health or prescription insurance coverage, self-perception of health, type of illness (acute vs. chronic), and the introduction of prescription medications strictly for quality-of-life, *e.g.,* Viagra (Chrischilles et al., 1992; Eng & Lairson, 1988; Swartz, 1998).

2.4 Income distribution of the elderly

"Social Security no doubt is the mainstay of the elderly people of the United States in terms of income" (Thorson, 1995). As of 1994, the

average monthly payment was $674 (Thorson, 1995). When Social Security was implemented, its intent was not to be the sole income of the elderly but rather a 'safety net' in terms of retirement income and also as an insurance program to take care of persons widowed, orphaned or disabled (Thorson, 1995). It is true, however, that Social Security is a major factor in reducing the percentage of elderly persons in poverty (from 35 percent in 1960, to 12.8 percent in 1988, to 11.9 percent in 1997 (Binstock, 1992; Porter, Larin, & Primus, 1999). In 1992, Social Security comprised 50 percent of the income of almost 60 percent of the elderly and 32 percent reported that Social Security accounted for 80 percent or more of their income (USA, 1996).

In 1995, the Bureau of the Census reported that 10.5 percent of the elderly (3.3 million) lived at poverty level; 17.7 percent lived below 125 percent of the level; and 39.6 percent had incomes below 200 percent of the level. However, the elderly represent about a 35-year age span so there are differences in the levels of poor and near poor among age groups. There are larger percentages of near-poor (incomes below 200 percent of poverty) in the oldest-old group compared to the young-old age group (Census, 1996). This may be due to spending down assets or loss of a spouse's income due to death (Atkins, 1992).

One might believe that elderly living in poverty are able to receive medical coverage through Medicaid. However, Gross et al. found that

almost 60 percent of elderly who are at or below poverty level did not receive medical assistance and spent half their income for out-of-pocket health care, regardless of having their Medicare benefits provided by a fee-for-service plan or HMO. Elderly with incomes between 100 and 125 percent of poverty level who were not in a Medicaid program spent 30 percent of their income out-of-pocket for health care (Gross et al., 1999). Similar numbers were confirmed by the Public Policy Institute of AARP (Gibson, Brangan, Gross, & Caplan, 1999).

Elderly with incomes between one and two times the poverty line are likely to have only Medicare coverage. Holden and Smeeding define these near-poor individuals as "insecure" compared to non-elderly with the same income; this was established by comparing assets and income relative to economic and health-related dangers (Holden & Smeeding, 1990). This "insecurity" was shown by a study comparing the out-of-pocket health care expenditures of low-income elderly to those of the high-income elderly (four times the poverty level). Using cross-sectional 1986-88 data from the Bureau of Labor Statistics, Rubin and Koelln found that the ratio of out-of-pocket health expenditures to total expenditures for poor elderly was larger than elderly with higher income. Even with Medicare available to virtually all elderly, the burden of medical expenses is not shared equally among the elderly income groups (Rubin & Koelln, 1993).

Assets of the elderly are predominately in the form of home equity; 75-79 percent of the elderly own their own homes, 80 percent of which are mortgage-free (Jacobs, 1986; Schulz, 1995). Excluding the home-equity, median elderly net worth per capita, in dollars, was $44,410 in 1993 (Bureau, 1999).

However, one must look beyond this number. Every year "new" seniors enter the group and they bring with them incomes that are higher with each succeeding year. Also, every year, members of the oldest-old group die and they tend to have drained their incomes.

Current income and asset measures are incomplete indicators of economic well-being. An elder with $20,000 in assets and an $8,000 annual income may feel more economically vulnerable than a graduate student with the same asset and income structure. The elder, unlike the student, does not have rising potential as an income producer, is at greater risk for catastrophic illness, is likely to have one or more ADLs if over 75 years, and at greater risk of asset depletion with the incomplete coverage of Medicare (Holden & Smeeding, 1990). The generalized reports showing elders being increasingly better off than in the past do NOT reflect their economic insecurity.

2.5 Medicare

Medicare is a federal health insurance program for people age 65 and older, people of any age with permanent kidney failure, and certain disabled people under age 65. Medicare is managed by the Health Care Financing Administration (HCFA), which is part of the Department of Health and Human Services (DHHS, 1999). Persons age 65-and-older, who are eligible for Social Security benefits, are entitled to Medicare Part A. (Also entitled are some disabled and persons with end-stage renal disease (ESRD). The monies that fund Medicare Part A come from payroll taxes on employees, employers, and the self-employed (Davis & Burner, 1995).

Part A is the hospital insurance portion of Medicare. Part A covers inpatient hospital services (IH), some skilled nursing facility care (SNF), home health care (HH), and hospice care (HC) for the terminally ill (added in 1982). Medicare Part A helps pay for up to 90 days of inpatient hospital care in each benefit period. Covered services include semi-private room and meals, general nursing services, operating and recovery room costs, intensive care, drugs, laboratory tests, X-rays, and all other necessary medical services and supplies. For inpatient skilled nursing or rehabilitation services after a hospital stay, Part A helps pay for up to 100 days in a participating nursing facility in each benefit period. Medicare pays all approved charges for the first days; the insured pays a coinsurance amount for days 21 through 100. Covered services semi-private room and meals,

skilled nursing services, rehabilitation services, drugs, and medical supplies (DHHS, 1999).

For certain conditions, Medicare pays the full-approved cost of covered home health care services. This includes part-time or intermittent skilled nursing prescribed by a physician for treatment or rehabilitation of homebound patients. There is a 20 percent co-insurance charge for equipment such as a wheelchair or walker. Medicare helps pay for hospice care for terminally ill beneficiaries who select the care benefit. There are no deductibles, but there is a limit placed on costs for drugs and inpatient respite care (DHHS, 1999).

Persons who have Medicare Part A do not automatically receive Part B benefits; one must sign up for this benefit and also pay a monthly premium. The monies that fund Part B come from a trust fund that receives most of its income from general federal revenues and premiums; the monthly Part B premium in 1996 was $42.10 (Davis & Burner, 1995).

Medicare Part B helps pay for doctor's services, outpatient hospital services (including emergency room visits), ambulance transportation, diagnostic tests, laboratory services, outpatient therapy services, durable medical equipment and supplies, and a variety of other health services. Part B covers some preventive services such as hepatitis, influenza, and pneumonia immunizations, Pap smears, mammography, colorectal screening and bone mass measurements. Part B covers some diabetic

supplies such as glucose monitors, lancets, test strips and diabetic management training (Davis & Burner, 1995; DHHS, 1999).

Medicare Part B also pays for home health care services for which Part A does not pay. Part B pays 80 percent of approved charges for most covered services. The insured is responsible for paying a $100 deductible per calendar year and the remaining 20 percent of each Medicare approved charge. There are limited additional charges if the doctor is one who does not accept Medicare assignment, *i.e.*, if the doctor does not agree to accept the Medicare approved charge for services.

As of 1994, Medicare was the only health care insurance for about 12 percent of community-dwelling elders (Olin & Liu, 1998).

2.6 Services Medicare does not cover

Medicare Part A does not pay for convenience items such as telephones and televisions provided by hospitals or for skilled nursing facilities, private rooms (unless medically necessary), or private duty nurses. The only type of nursing home care Medicare pays for is skilled nursing facility care for rehabilitation, such as recovery time after a hospital discharge. Medicare does not pay if the insured needs only custodial services (help with daily living activities like bathing, eating or getting dressed).

Medicare Part B does not usually pay for outpatient prescription drugs, routine physical examinations, or services not related to treatment of illness or injury. Part B does not pay for dental care or dentures, cosmetic surgery, routine foot care, hearing aids, examinations, or eyeglasses.[4] Except for certain limited cases in Canada and Mexico, Medicare does not pay for treatment outside the United States (DHHS, 1999).

2.7 Medicare supplemental plans

There are three major types of Medicare supplemental plans available to the elderly: employee coverage, retiree coverage, and medigap insurance. As of 1994, the distribution of supplemental insurance ownership by community-dwelling elders was as follows: 33.7 percent owned policies from employer-sponsored private purchase, 28.1 percent owned policies from individual private purchase (medigap), 4.6 percent had both types of private insurance, 14 percent were covered by Medicaid (Olin & Liu, 1998). If one looked at all elders, then the distributions would be different in regard to medigap plans (40 percent) and Medicaid (12 percent) (Chulis et al., 1993).

Employee coverage comes from the employer or union of a Medicare beneficiary. (Some Medicare beneficiaries may continue to work

[4] Medicare coverage provided through Health Maintenance Organizations (HMOs) is discussed in a future chapter.

part-time and receive health-care benefits during retirement.) Retiree coverage comes through the pension benefit of an employer or union of a retired Medicare beneficiary. Employee coverage and retiree coverage may have the same, less or more coverage when compared to the services Medicare Part A and/or Part B provides and may or may not cover outpatient prescription drugs. These coverages are most-often offered in packages offering varying degrees at different premiums to the insured. In the past, employer-based plans typically provided greater coverage than did individually-purchased plans for the same amount of money (Shea & Stewart, 1994).

Medigap insurance is Medicare supplemental insurance purchased from a private company or group by an elder. Medigap insurance is specifically purchased to cover the copayments, deductibles and health services not covered by Medicare Parts A and B (Table 2). In all states except Minnesota, Massachusetts, and Wisconsin, there are ten basic federally-standardized medigap plans, labeled A through J. As one can see, Prescription drug coverage is available in only three of these plans.

Table 2. Benefit Allocations of Medigap Plans(DHHS, 1999)

Plan Letter	Basic	Part A: Inpatient Hospital Deductible	Part A: SNF Co-insurance	Part B: Deductible	Foreign Travel Emerg.	At Home Recovery	Part B: Excess Charges	Prev. Care	Rx
A	X								
B	X	X							
C	X	X	X	X	X				
D	X	X	X		X	X			
E	X	X	X		X			X	
F	X	X	X	X	X		100 percent		
G	X	X	X		X	X	80 percent		
H	X	X	X		X				X**
I	X	X	X		X		100 percent		X**
J*	X	X	X	X	X	X	100 percent	X	X***

* Plan has a high deductible option available: insured must pay $1,500 out-of-pocket before Plan pays anything.

** Basic prescription coverage: after a $250 prescription deductible per year, the plan pays 50 percent of prescription expenses up to a yearly maximum of $1,250.

*** Extended prescription coverage: after a $250 prescription deductible per year, the plan pays 50 percent of prescription expenses up to a yearly maximum of $3,000.

2.8 Supplemental insurance purchase design

Policies are designed for either group or individual purchase. The design affects the price of the policy. A group purchase describes a supplemental insurance purchased through an employer upon retirement. However, the insurer most likely offers varying types or levels of coverage. When the elder selects the type of policy, the information of the person's risk type becomes known to the insurer. A low-risk elder knows he is healthy and at low-risk for major chronic illnesses. A high-risk elder knows he has medical problems and at high risk for developing more illness.

With this symmetry of information, the insurer prices its policies according to the level of risk of the self-selectors, *i.e.*, low-risk elders are likely to buy different policies than high-risk elders. Therefore, in a group buy, low-risk elders do not, as a rule, subsidize the high-risk elders because they have separated themselves through self-selection. Both low- and high-risk elders consider these policies as bargains and a benefit of employment.

Purchase of supplemental insurance, *e.g.*, a medigap policy, is an individual purchase. With this purchase, there is asymmetry of information, *i.e.*, the individual knows more about his health needs and risk-aversion than does the insurer. This makes underwriting and rating the insurance coverage more difficult for the insurer. As a result, these policies present comparatively higher premiums for the same benefits received in the group buy policies in order to compensate for this phenomenon of adverse selection (Browne & Doerpinghaus, 1994). When an elder must individually purchase a medigap policy, the policies may not be viewed as a "bargain" by the elder in terms of benefit received--unless the elder is in the high-risk group. Thus, the level of disposable income and the benefit derived from the premium influence the decision to purchase a medigap policy.

Insurers of both group and individual-purchase policies have used cost-shifting to try to keep down costs and premiums. As seen in the medigap overview, insurers may offer high deductible options for any of the

medigap policies in order to decrease the premium. This may help elders in the low-risk group purchase better coverage at the risk of paying more out-of-pocket. However, during 1995 and 1996, premium increases to medigap plans averaged 23 percent nationwide.

Employers have begun raising premiums and copayments, introducing formularies, deductibles, second opinion requirements, and decreasing benefits. This cost-shifting may reduce the proportion of future elderly who accept employer-based plans and may increase the number of elderly persons who have no supplemental insurance (Phillips, Schuler, & Jacobs, 1994; Swartz, 1998).

2.9 Elders' purchase of supplemental insurance coverage

Elders purchase Medicare supplemental insurance for a variety of reasons: they may have the opportunity to purchase it economically through an employer, they may have the income, they may be risk-averse, or they perceive themselves as becoming high-risk users through personal knowledge of existing or future health problems.

Important specific determinants of supplemental policy ownership are race, income, the young-old age group, education, and self-perceived health status, with race and income being the most important (Long, 1994; Rice & McCall, 1985). In a combined Medicare/insurance policy survey of 1,657 in 1982, Rice and McCall found supplemental ownership rates for

whites ranged from 79 to 85 percent whereas ownership among non-whites ranged from 22 to 59 percent (Rice & McCall, 1985). Similar statistics have been reported by Short and Vistnes using data from the 1987 National Medical Expenditure Survey and by HCFA (Chulis et al., 1993; Short & Vistnes, 1992).

Of those elders having only Medicare coverage, about 27 percent had yearly incomes over $15,000. Of those elders who had either an individually-purchased or an employer-sponsored policy, about 51 and 70 percent respectively, had incomes above $15,000 (Olin & Liu, 1998). Short and Vistnes examined data from the 1987 National Medical Expenditure Survey Data and found that poor and low-income elders (who were over-represented by the oldest-old) were less likely to possess private supplemental hospital and medical insurance compared to elders of other income levels. More than a quarter of low-income elders (income between 100-200 percent of federal poverty line) had no private supplemental hospital or medical insurance (Short & Vistnes, 1992).

The young-old cohort possesses the largest share of employer-sponsored plans compared to other elderly cohorts. Thus, if an elder retires without an employer-sponsored supplemental plan, the elder is likely to purchase an individual private plan up until age 85. Generally, as age increases, the share of elders with private insurance decreases (Chulis et al., 1993; Rice & McCall, 1985).

In regard to education, Short and Vistnes also found that a significantly higher proportion of better-educated beneficiaries held multiple sources of hospital and medical coverage. As one can see, if an elder does not receive prescription drug coverage through an employee benefit, pension benefit, or welfare, the elder's only other option is to purchase the coverage in medigap plans H, I and J. The choices are limited, the coverage is minimal, and the premiums of the policies offering drug coverage are extremely high.

2.10 Purchase of supplemental insurance with a drug benefit

With elders' knowledge about the benefit of drug therapy, one would expect those who purchase a supplemental insurance policy to purchase one with an outpatient prescription drug benefit. In 1995, 65 percent of Medicare beneficiaries do so (Davis et al., 1999).

A prescription drug benefit significantly raises a policy's premium (DHHS, 1999; Gianfrancesco et al., 1994; Grootendorst et al., 1997; Long, 1994; Rogowski et al., 1997; Stuart & Grana, 1995; Swartz, 1998; Waldo, 1994). (Insurance coverage without a prescription benefit can also induce the prescription demand by making it easier for coverees to visit medical providers who generate prescriptions.) Given the fact that an outpatient prescription drug benefit significantly raises a policy's premium, (Davis et al., 1999; Swartz, 1998), low and mid-income elders who purchase

medigap policies privately rarely choose policies with a drug benefit (Long, 1994; Rogowski et al., 1997). They presumably either accept their medication expenses or use alternatives to reduce them: 1) purchasing prescription medications in Mexico or Canada, 2) self-medicating with over-the-counter medications, or 3) reducing their prescribed medication dosages by cutting pills, eliminating doses, etc. (Aiken, Smith, Juergens, Banahan, & Barnes, 1994; Col, Fanale, & Kronholm, 1990; Defiebre, 1996; Reutzel, 1993; Smith, 1976; Swartz, 1998; Wolfe, 1996). Lastly, some elders may see little value in medigap coverage: they have little to protect and Medicaid is available to them if they get into trouble (Wolfe & Goddeerpis, 1991).

There is one other option for Medicare beneficiaries to receive an drug benefit without buying a supplemental insurance policy. This option is called Medicare HMO.

2.11 Medicare HMOs and prescription coverage

As of 1996, there were 4.4 million elderly enrolled in a Medicare Health Maintenance Organizations (HMO). Medicare HMOs are managed care organizations which provide a Medicare option; the HMO organization is paid a capitated per member per month fee to provide all Medicare benefits and any additional benefits they wish to provide (Herzfeld, 1996). This option is initially considered attractive to many elders because it offers

decreased out-of-pocket expenses, low premiums, fixed copays, and expanded medical benefits when compared to Medicare Part B (Feinson, Hansell, & Mechanic, 1988; Gold, Nelson, Brown, & Ciemnecki, 1997; Langwell & Hadley, 1989). Criteria for acceptance into HMOs insure that Medicare HMO enrollees are less likely than non-enrollees to use health services. They are more likely to be among the young-old, to be married, to have a low income and have self-perceived "excellent" health (Hellinger, 1987; Langwell & Hadley, 1989; Riley, Tudor, Chiang, & Ingber, 1996).

During the time period that this study covers, approximately 80 percent of Medicare HMOs offer some type of prescription benefit, and 70 percent of Medicare HMO enrollees cite this benefit as the major reason for joining (Herzfeld, 1996). Many of these HMOs are located in certain urban centers in the US (mostly in the East, Southeast, and California) (Herzfeld, 1996). By 1995, nearly three-quarters of all elderly lived in areas served by at least one Medicare HMO (Davis & Burner, 1995).

There are marked differences in federal government reimbursement levels among Medicare HMOs because the reimbursement levels are set at 95 percent of the average cost of taking care of a beneficiary in the county under the traditional fee-for-service system, *i.e.*, adjusted average per capita cost (AAPCC) (Dowd, Christianson, Feldman, Wisner, & Klein, 1992; Herzfeld, 1996; Langwell & Hadley, 1989). Areas of the country that have more efficient health care delivery receive lower reimbursement and are, in

effect, penalized for their efficiency. Thus, Medicare HMO beneficiaries in areas of low reimbursement rates usually pay premiums, unlike enrollees in other metropolitan areas where reimbursement levels are higher, such as Miami or Los Angeles. In areas where reimbursement is higher, the Medicare HMOs often offer expanded benefits such as prescription drugs, preventive services, vision and hearing care (Herzfeld, 1996). Therefore, out-of-pocket costs and outpatient prescription drug coverage for Medicare HMO enrollees depend on where the enrollee lives.

There are problems within the Medicare HMO system. Profit margins of HMOs managing Medicare risk programs used to average about 3 to 5 percent but the margin is eroding (Herzfeld, 1996). As a result, HMOs have begun canceling their Medicare risk contracts due to insufficient reimbursement (Howatt, 1998a; Howatt, 1998b; Neuman & Langwell, 1999). Further, a number of health care providers (physicians, clinics) have resigned from participation in Medicare HMO networks, again citing insufficient reimbursement as a reason (Howatt, 1998b).

The future of prescription coverage as a benefit of a Medicare HMO is in jeopardy. In 1995, 18 percent of beneficiaries enrolled in a Medicare HMO spent $800 or more on prescription drugs. With the number of new drugs on the market and the higher use of prescription drugs, Medicare HMOs may be introducing higher (and tiered) copays, a cap on the yearly

dollar amount spent for prescription drugs, or discontinuing the prescription drug coverage altogether (Soumerai & Ross-Degnan, 1999; Swartz, 1998).

2.12 Effect of prescription drug coverage on other health care expenditures

There is a need to determine if having prescription drug coverage influences events and/or expenditures significantly in other health care service areas. Only one study has considered the effects of prescription drug coverage on health care expenditure and service use (Lingle, Kirk, & Kelly, 1987). In that study, researchers examined 1979 data of 9,996 New Jersey and eastern Pennsylvania Medicare beneficiaries. The researchers found that inpatient hospital costs were 25 percent lower ($238.59 per member per year) for elderly who had drug coverage than for those who did not. The presumption was that the decrease in hospital expenditures occurred from access to adequate drug therapy. The statistical analysis of some of the data can be questioned, since the ANOVA methods used by the researchers assumed that both expenditure data and utilization data (counts) were normally distributed. In fact, neither of these assumptions were met: expenditure data (unless, for example transformed to a logarithmic scale) is almost invariably highly skewed, and count data should be modeled using Poisson distributions or categorical methods. Their study did not use representative data for the population and did not include non-

Medicare covered expenditures. The authors were contacted but the data were unavailable for re-analysis.

A closely-related study by Johnson et al. examined the effects of increased prescription drug cost-sharing on other medical care use by elderly HMO members. Even when copayments increased, no statistically significant changes in physician office visits, emergency room visits, hospitalizations, or home health care visits were seen. The study was limited to a Medicare HMO risk organization and its model equations did not include geographic or demographic control variables and did not specifically identify a variable such as generosity (Johnson, Goodman, Hornbrook, & Eldredge, 1997).

2.13 Current and future status of prescription coverage for elderly

In both 1993 and 1994, only 12 percent of seniors were covered for health insurance by Medicare alone (Laschober, 1997; Olin & Liu, 1998). While these estimates suggest that many elders supplement their health insurance, 45 percent of the elderly have no insurance for prescription drugs (Long, 1994).

Elders who have an outpatient prescription drug benefit may not be able to maintain this coverage due to premium increases and/or flourishing cost-sharing mechanisms. Insurers and benefit managers curtail prescription benefits for pensioners for a variety of reasons: 1) rising costs

of prescription drugs, 2) Medicare displaced to secondary payor, 3) increased number of persons opting for early retirement, and 4) pension benefits considered as liability on company financial statements (Morrisey, 1993).

For example, medigap policies are moving to an attained-age rating when setting premiums, *i.e.*, rates increase as one ages (Fox, Rice, & Alecxih, 1995). In employer-based retirement health plans, employers are reducing their share of the burden by using the carve-out method to determine reimbursement (Davis, Rowland, Altman, Collins, & Morris, 1995; Davis & Burner, 1995; Jensen & Morrisey, 1992) and increasing the retirees' cost sharing portion, especially for outpatient drug coverage (Chulis et al., 1993; Davis & Burner, 1995; Schulz, 1995).

As for Medicare HMOs, some find their costs for prescription and medical care for elderly are not adequately reimbursed by the government. HMOs across the US (Washington, Oregon, Delaware, California, Virginia, Maryland, Massachusetts, New Hampshire, Rhode Island, Ohio, and Minnesota) are cutting back the benefits of, or dropping altogether, their risk-based Medicare programs (Howatt, 1998b). Managed care companies, once thought to have found a way to introduce outpatient prescription drug benefits to Medicare beneficiaries (Herzfeld, 1996), may not continue these benefits in the future.

2.14 Missing information and need for present study

The preceding background describes the elderly in terms of their current and projected population level, their health, their prescription drug needs, the financial impact of their overall health care needs on private and public health care services. And while elders' need for prescription medications is evident, there remains hesitation to provide outpatient prescription drug coverage as an additional benefit to Medicare. This hesitation revolves around several issues:

- the burden placed on government to pay for such a program
- the expected increase in prescription drug expenditure due to the insurance effect of the coverage
- the inadequate body of knowledge regarding the economic impact of an outpatient prescription drug coverage on other, relatively more-costly health care service use and/or expenditure

While the pharmaceutical industry and pharmacy profession insinuate that prescription drugs save money in other areas of health care, there is only one study to-date with the intended research aim to study this effect.

The study by Lingle et al. had shortcomings. A recently-available set of national data files containing summarized health-related survey, expenditure, and service information provides the opportunity to address these shortcomings. In particular, a more accurate model explaining the relationship between outpatient prescription drug coverage on elders' other health care service use and expenditure should be possible since this

national data set includes both Medicare-covered and non-Medicare covered the expenditures and service information.

CHAPTER THREE

Research Objectives and Specific Aims

This research project investigates the economic impact of outpatient prescription drug coverage (Rx Coverage) for Medicare beneficiaries in terms of total and specific health care expenditure and service use. generosity of the prescription benefit (Rx Generosity), classified here as none, poor, fair, and good) is considered as a factor in the expenditures spent and/or service used by this population. The following specific aims are:

Specific Aim A_1. Determine if elderly possessing Medicare + supplemental insurance + prescription drug coverage had lower specific health care service use when compared to elderly possessing Medicare + supplemental insurance without prescription drug coverage.

Specific Aim A_2. Determine if, and to what extent, generosity of significantly influenced the estimates developed in Specific Aim A_1.

Specific Aim B_1. Determine if elderly possessing Medicare + supplemental insurance + prescription drug coverage had lower specific health care expenditures when compared to elderly possessing Medicare + supplemental insurance without prescription drug coverage.

Specific Aim B_2. Determine if, and to what extent, generosity of prescription drug coverage significantly influenced the estimates developed in Specific Aim B_1.

Specific Aim C_1. Determine if elderly possessing Medicare + supplemental insurance + prescription drug coverage had lower total health care expenditures when compared to elderly possessing Medicare + supplemental insurance without prescription drug coverage.

Specific Aim C_2. Determine if, and to what extent, generosity of prescription drug coverage significantly influenced the estimates developed in Specific Aim C_1.

CHAPTER FOUR

METHODOLOGY

4.1 Description of MCBS data used in the analyses (Adler, 1994; HCFA, 1995; Olin & Liu, 1998; Westat, 1999)

The Medicare Current Beneficiary Survey (MCBS) is a survey sponsored by the Health Care Financing Administration (HCFA), under the general direction of its Office of Strategic Planning. The data are collected and assembled by Westat, a survey research organization contracted by HCFA.

Each yearly MCBS sample consists of a nationally representative sample of approximately 13,000 aged and disabled Medicare beneficiaries. Initially the sample was designed using a multi-purpose longitudinal panel with replacement as necessary. In the fall of 1994, the design of the MCBS began transitioning from a longitudinal panel design to a rotating panel design. The rotating panel design limits subjects to four years of participation in the MCBS study. At the end of the first round of survey in 1996, all participants from 1991 and 1992 were rotated out of the MCBS. Due to this design change, this dissertation used only the Cost-and-Use files for years 1992 through 1995.

The MCBS represents the entire Medicare population, *i.e.*, 65 years of age and older community-dwelling and institution-dwelling elders and under 65 years of age disabled residents in the United States or Puerto

Rico. Its sampling methodology allows for generalizability (national representation, approximately 13,000 participants yearly) and over-samples some classes including the oldest-old (85 years and over) and non-elderly disabled. During their participation in the survey, elders are followed and re-interviewed throughout their movements from community to institution stays and back again. The interviews are conducted three times a year; administrative and billing information are connected to survey data. The sample is replenished annually during the third interview period (September through December), replacing persons who refuse participation, dis-enroll, emigrate, die, or (in recent years) rotated out of the survey.

This dissertation used the Cost-and-Use data files from the MCBS. The sample population in each Cost-and-Use file represents all Medicare beneficiaries who were enrolled during any portion of a particular calendar year. The Cost-and Use files contain information about medical care accessibility, satisfaction with care, health status and functioning, and demographic/financial characteristics of beneficiaries. They also contain information on non-Medicare-covered services and details about health insurance coverage. HCFA contracts the WESTAT Corporation to assimilate the survey and administrative data, to develop an accurate algorithm to impute costs and payment sources that are missing in order to create a complete set of data that preserves all partial data (England,

Hubbell, Judkins, & Ryaboy, 1994). For this study, the Cost & Use data files were considered valid and reliable.

4.2 MCBS community interview versus facility interview (Adler, 1994; HCFA, 1995; Olin & Liu, 1998)

The community interview supplies about 90 percent of the information in the MCBS. In the community interview, the interviewer surveys the sample person at home. If the person is unable to answer the questions, the sample person designates a proxy to provide the answers. The interviewer conducts the survey using a computerized questionnaire on a laptop computer. The computer stores information from the last interview given by a sample person so the dialogue of questions remains fluid and updates and/or corrections are easier to enter. HCFA trains and re-trains the interviewers. Lastly, the computer software that the interviewer uses while conducting the interview includes "a series of checks during the interview that detects inconsistencies and allows interviewers to verify information or edit previous responses" (HCFA, 2000).

The facility interview for long-term residents necessitates a shortened community interview instrument. The initial interview is between the interviewer and the facility administrator and then subsequently with a staff member designated as the most appropriate to answer questions about the sample person. The facility interview includes questions about health status, residence history, insurance coverage, and the use and cost

of services but does not include any questions that require attitude or subjective responses.

This dissertation did not distinguish between community-dwelling and facility-dwelling elders. Therefore, information from both types of interviews may be consolidated for some subjects in the MCBS summary variables.

4.3 Research design and model variables

This dissertation was a non-experimental, retrospective, cross-sectional, and descriptive cohort study of all eligible elderly in the 1992 through 1995 Medicare Current Beneficiary Survey (MCBS).

The dependent variables used in the models were adjusted total expenditures of health care, adjusted specific expenditures of health care, and adjusted total number of events for specific health care services. The term 'adjusted' refers to the statistical imputation work by HCFA that led to the yearly summary computation. The derivation of the dependent and control variables is documented in Appendix A.1-A.3. The variables and their levels are listed in Table 3a.

Table 3a. Dependent Variables

Log Adjusted Total Expenditures
Log Adjusted Specific Expenditures
Adjusted Numbers of Specific Events

Adjusted total expenditures for health care included both Medicare-covered and non-covered services of all beneficiaries except those enrolled

in HMOs.[5] Dental and home health care expenditures were not reflected in total expenditures. Adjusted specific expenditures for health care included both Medicare-covered and non-covered services for all beneficiaries except those enrolled in HMOs.[5] Categories of specific expenditures in the MCBS were inpatient hospital, medical provider, outpatient hospital, prescription, facility (long-term stay), hospice, and institution (short-term stay). In this study, due to the small numbers of subjects using facility, hospice and institution services, expenses and events for these three categories were summed and called "miscellaneous". Dental and home health care expenditures were not within any specific expenditure total.

Adjusted numbers of specific events were summed totals by each service category: inpatient hospital, medical provider, outpatient hospital, prescription, and miscellaneous. The number of events contained both Medicare-covered and non-covered services for all beneficiaries, including those enrolled in HMO-type insurance groups.

[5] Expenditures reported by HMOs represent annual capitation payments; HMO insurance groups were included in expenditure analyses (Laschober, 1997).

Table 3b. Predictor Variables

All Models:	
Type of Insurance	MEDICARE-only
	MEDICARE HMO
	PRIVATE
	PRIVATE + HMO
Rx Coverage Models:	
Level of Rx Coverage	No
	Yes
Rx Generosity Models:	
Level of Rx Generosity	genNONE
	genPOOR
	genFAIR
	genGOOD

The predictor variables (Table 3b) used in the prescription drug coverage models were type of insurance coverage and level of Prescription drug coverage. The predictor variables used in the Rx Generosity model were type of insurance coverage and level of generosity of outpatient prescription drug coverage. MEDICARE-only identified elders who had no supplemental coverage. MEDICARE HMO identified elders enrolled in a Medicare HMO plan. PRIVATE identified all elders who possessed one or more private supplemental plans. PRIVATE + HMO identified elders who possessed a private supplemental plan and HMO coverage. The categories of insurance coverage were mutually-exclusive. Appendix B.1 contains the SAS programming specifics about insurance designation.

The MCBS did not provide details about prescription coverage other than if the person possessed it or not. Without direct information regarding copays, deductibles of the supplemental insurance or the medigap plan

letter (A through J), generosity of prescription drug coverage had to be inferred.

Therefore, what the elders "feel" come out of their pockets every year relative to their total prescription drug expenditure guided the generosity variable construction. Generosity of prescription drug coverage was based on the ratio of total out-of-pocket expenditure to total prescription expenditure. Appendix B.2 contains SAS programming specifics about building the generosity variable. Upon review of the frequency distributions of the ratios in each study year, the ratios were then separated into four generosity levels based roughly on quartile divisions.

$$\text{Rx Generosity Ratio} = \frac{\text{Adjusted out-of-pocket expenditure}}{\text{(Adjusted total Rx \$ - Adjusted Medicare-covered payment)}}$$

Rx Generosity (NONE) : paying greater than 99 percent out-of-pocket for yearly Rx total

Rx Generosity (POOR) : paying > 80 percent and up to 99 percent out-of-pocket for yearly Rx total

Rx Generosity (FAIR) : paying > 20 percent and up to 80 percent out-of-pocket for yearly Rx total

Rx Generosity (GOOD) : paying 20 percent or less out-of-pocket for yearly Rx total

Control variables (also called covariates) were used in all models and are listed in Table 3c. These variables came from three domains--demographic, geographic and health status and were used in all statistical models. The basis for the inclusion comes from their influence on health

service usage (Blaum, Liang, & Liu, 1994; Browne & Doerpinghaus, 1994; Chulis et al., 1993; Davidson, Sofaer, & Gertler, 1992; Experton, Li, Branch, Ozminkowski, & Mellon-Lacey, 1997; Holden & Smeeding, 1990; Krehling & Wiederholt, 1987; Leon & Lair, 1990; Lubitz, 1987; Miller, 1992; Shea & Stewart, 1995; Wolfe & Gabay, 1987; Wolinsky & Johnson, 1991).

Table 3c. Control Variables (Covariates)

Control Variables (Covariates)	Levels
All Models:	
Age Strata	65-69, 70-74, 75-79,80-84, 85+
Race	Non-Hispanic white, Non-Hispanic black Other, Asian, Hispanic, Native American
Gender	Male, Female
Income	$5,000 or less, $5,001- $10,000, $10,001 - $15,000, $15,001 - $20,000 $20,001 - $25,000, $25,001 or more
Marital Status	Married, Widowed, Divorced/Sep., Never Married
Census Region	10 Regions
Metropolitan Residence	Non-Metro, Metro
Number of ADLs	0,1,2,3,4,5,6+
Number of IADLs	0,1,2,3,4,5,6+
Self-Perceived Health Status	Poor, Fair, Good, Very Good, Excellent
Number of Chronic Diseases	0,1,2,3,4,5,6+

Income was considered an alternative to education in terms of socio-economic status. Geography was included to account for variability in health care practice and access to care. Since previous researchers have found that the type of chronic disease influences self-perceived health

status, it was presumed that the number of chronic diseases did not provide enough specificity for adequate control (Blaum et al., 1994). Therefore, self-perceived health status, ADL and IADL information were included as covariates. While the MCBS does include specific questions related to physical disability, the inclusion of IADL and ADL were considered sufficient. Complete definitions of these variables are listed in the Glossary.

Each control variable was tested in a simple model with various dependent expenditure terms, *e.g.* log (inpatient hospital $ + $1), and only an intercept term. Most variables were significant or nearly significant. Some were not significant for every dependent variable tried but were included in all models for consistency.

4.4 Study samples

Two different samples were used in this study to answer the Specific Aims stated earlier. Specific Aims A_1 and B_1 questioned whether prescription coverage (Prescription drug coverage) itself played a role in reducing expenditures or health service events. For ease, the sample used to address these aims is called the Rx Coverage sample. Specific Aims A_2, B_2, and C_2 questioned whether prescription coverage generosity (Rx Generosity) played a role in reducing expenditures or health service events. The sample used to address them is called the Rx Generosity sample. The inclusion and exclusion criteria and resultant numbers for the two samples

are listed in Tables 4 and 5, respectively. The only difference between the two samples is that an individual had to have non-zero prescription expenses to have a defined generosity and be included in the Rx Generosity sample.

Table 4. Samples' Inclusion and Exclusion Criteria[6]

Sample for Rx Coverage model	Sample for Rx Generosity model
Inclusion • Full year participation • 65 as of July 1 of study year • Annual Medicare Part A and B	Inclusion • Full year participation • 65 as of July 1 of study year • Annual Medicare Part A and B • Rx expense in study year
Exclusion • Death any time during study year • Enrolled in ESRD, Medicaid or non-annual supplemental insurance coverage	Exclusion • Death any time during study year • Enrolled in ESRD, Medicaid, or non-annual supplemental insurance coverage

Table 5. Resultant number of subjects in each sample[7]

	1992	*1993*	*1994*	*1995*
Original MCBS	13,039	12,330	12,777	12,096
Final Sample Size				
Rx Coverage	7,659	7,539	7,685	7,206
Rx Generosity	6,720	6,426	6,535	6,237

[6] An example of the programming code for this exclusion process is documented in Appendix B.3.

[7] Numbers of subjects eliminated in each step are in Appendix B.4.

The inclusion/exclusion criteria eliminated about half of the original MCBS sample. It was intentionally conservative (*e.g.*, eliminating persons with partial insurance coverage) in order to make for better modeling. The integrity of the resultant samples was evaluated in terms of its resemblance to population estimates using predictor and control variables. An elder could and probably was in one year and the next and correlation in year-to-year results were expected. Even though some elders were present in more than one year, their number of events did not necessarily remain the same (though their probability of obtaining service was correlated from year to the next.) The statistical analysis did not presume independence from year to year. To do year-to-year modeling is problematic in the MCBS Cost and Use Files and is not encouraged by HCFA at this time.

4.5 Comparison of subjects in sample to the population

Appendix C contains tables comparing the distribution of control variables (covariates) among the Medicare population (65 years and older), the original MCBS sample (65 years and older), the Rx Coverage sample, the Rx Generosity sample, the subjects removed from the MCBS for the Rx Coverage study (all ages) and those removed for the Rx Generosity study (all ages). This section summarizes the comparison of the resultant samples to the Medicare population (65 years and over).

Income distribution for the Medicare population showed approximately one-third of elders had 0-$10,000, one-third had $10,001-$20,000 and one-third had > $20,001 yearly incomes (Appendix C, Table C.1). When comparing the resultant samples to the population, the yearly income distribution remained about the same, with a slight decrease in the percentage of those with less than $10,000 and a slight increase in the percentage of those with incomes greater than $10,000. (The income distribution of the removed subjects showed that they had low income; this was expected. This was due to 1) the presence of subjects insured by Medicaid, and 2) subjects under 65 who were disabled, *i.e.*, low incomes).

In gender distribution, the population was about 40 percent male and 60 percent female (Appendix C, Table C.2). The resultant samples kept to those percentages.

In terms of age distribution, HCFA reported that more than half of beneficiaries were between the ages of 65-74, with approximately 30 percent in the 75-84 category and 11 percent 85 years and older (Appendix C, Table C.3). The original MCBS distribution reflected the over-sampling of the oldest-old group. In both resultant samples, the distributions of age were skewed slightly in the direction of the oldest old. This most probably resulted from MCBS sampling. While the skew did not reflect the current population percentages, it did reflect the future increase in the 85+ cohort.

Regarding marital status distribution, more than half of the Medicare population were married and over a third were widowed (Appendix C, Table C.4). The resultant samples contained slightly higher percentages (about 2-3 percent) in both categories and slightly less (about 2-3 percent) in the divorced/separated and single categories. This probably reflected the MCBS sampling and made for an intense scrutiny of the income covariate.

In race distribution, the population was predominantly white, with about 8 percent being non-Hispanic black and about 7 percent being in the 'other' category (Appendix C, Table C.5). A significant percentage of blacks were eliminated from both resultant samples; this may be due, in part, to the elimination of Medicaid subjects from the analyses. Therefore, the race distribution in the resultant samples was slightly 'more white' than in the full population.

In the population, the elderly were distributed about the same among eight out of ten census regions (Appendix C, Table C.6). The resultant samples were not distributed this way because the MCBS was not sampled to reflect population distribution. However, if one collapsed census regions, *e.g.*, New England + Mid-Atlantic, E. N. Central + W. N. Central, then the distributions became similar.

In the distribution of metropolitan residence, about 75 percent of the elderly population lived near or in a metro region (Appendix C, Table C.7). These percentages were maintained in the resultant samples.

In the number of chronic diseases distribution, more than two-thirds of the over-65 population had 2 or more chronic diseases (Appendix C, Table C.8). The resultant samples showed about 75 percent were in this category. This increase probably reflected, in part, the over-sampling of the oldest-old that occurred in the MCBS. Compared to the population, the resultant samples were 'sicker'. (As with the age variable, this describes the future and may serve to influence the expenditure/service use.)

In terms of self-perceived health status, about 75 percent of the Medicare population had "good", "very good" or "excellent" ratings (Appendix C, Table C.9). The resultant samples showed similar percentages, which was somewhat unexpected given the age and chronic disease distributions. This may have been a response-shift bias or the type of chronic disease distribution (which was not entered as a control variable) in the resultant samples. The 75/25 may also have been helped by the removal of persons in the good, fair, and poor ratings through the exclusion criteria: this study did not include the Medicaid population, who typically have a greater percentage of members with 'poor' self-perceived health status compared to non-Medicaid individuals.

For the estimates of ADL distribution among the Medicare population, a combination of HCFA and literature estimates were used to generate with the percentages listed in Appendix C, Table C.10 (Aging, 1996; HCFA, 1999; Olin, Liu, & Merriman, 1999; Statistics, 1999).

Generally, about 80 percent of elders had no ADL limitation, 5 to 8 percent had one ADL limitation and 5 to 10 percent had 2 or more ADLs. Compared to the population, the distributions within the resultant samples showed them to be more ADL-limited. This reflected, in part, the MCBS sampling, *i.e.*, over-sampling of the oldest-old and chronic disease distribution, except in the ADL = 0 category. This particular result may have been due to the inclusion/exclusion criteria: about half of the persons removed had no ADL limitations. Lastly, the population estimates varied quite a bit since most literature estimates come from community-dwelling elders and may not reflect the total population.

For the estimates of IADL distribution among the Medicare population, a combination of HCFA and literature estimates were used to come up with the percentages listed in Appendix C, Table C.11 (Olin et al., 1999; Whittle & Goldenberg, 1996). The population's distribution was 83 percent with no IADL and 17 percent with one or more IADLs. The IADL distribution of the resultant samples showed them to be more IADL-impaired. Possible reasons for this distribution are the same for the ADL distributions. However, the case for population-estimate error is well-grounded. The literature regarding this descriptive is sparse, not consistently defined, and mostly confined to special populations *e.g.*, only community-dwelling, only facility-dwelling.

For the insurance coverage distribution, the population estimates used came from both HCFA and the literature but only reflect community-dwelling elders (Appendix C, C.12). The original MCBS sample reproduced similar percentages of insurance distribution as in the population estimates: only 10 percent of the population possessed Medicare insurance alone, about 12 percent used an HMO as their provider (either through private insurance or as Medicare HMO), 60 percent carried additional non-HMO private insurance, and 17 percent were on Medicaid. More than 50 percent of the subjects who were removed from the Rx Coverage and Rx Generosity samples were Medicaid-insured. This makes sense because one of the exclusion criteria for these samples was the exclusion of Medicaid-insured subjects. The insurance coverage distribution of the Rx Coverage and Rx Generosity samples were consistent with the population percentages.

4.6 Model equations

Event and expenditure models were built for each study year and are listed below. As stated earlier, the term 'adjusted' refers to the statistical imputation effort by HCFA that led to the yearly summary computation.

Rx Coverage Sample

- **Single-Stage**

Poisson exponential generalized linear model:

Adjust Total Specific Events + 0.5 = f (Control Variables, Ins., Rx Cov., Ins*Rx)

Gaussian linear model:

Log (Adjust Total or Specific Health $ + $1) = f (Control Variables, Ins., Rx Cov., Ins*Rx)

- **Two-Stage**

Bernoulli logit generalized linear model:

Specific Health $ (0/1) = f (Control Variables, Ins., Rx Cov., Ins*Rx)

Gaussian linear model:

Log (AdjustTotal or Specific Health $) = f (Control Variables, Ins., Rx Cov., Ins*Rx)

Rx Generosity Sample

- **Single-Stage**

Poisson exponential generalized linear model:

Adjust Total Specific Events + 0.5 = f (Control Variables, Ins., Rx Gen., Ins*RxGen)

Gaussian linear model:

Log (Adjust Total or Specific Health $ + 1$) = f (Control Variables, Ins., Rx Gen, Ins*RxGen)

- **Two-Stage**

Bernoulli logit generalized linear model:

Specific Health $ (0/1) = f (Control Variables, Ins., Rx Gen., Ins*RxGen)

Gaussian linear model:

Log (Adjust Total or Specific Health $) = f (Control Variables, Ins., Rx Gen., Ins*RxGen)

Since health care events and expenditure data were not normally distributed, it was necessary to account for subjects who had no events or expenses in a category. There are two standard methods for this: one-stage and two-stage modeling. One-stage modeling adds a small amount, *e.g.* $1, to each subject's total yearly expense (or 0.5 to total yearly events) to avoid the mathematical difficulties of taking the log of zero (Experton et al., 1997). Two-stage modeling models the fraction of subjects who had non-zero expenses or events, *e.g.*, " event > zero", "$ > zero," and then models the event count data or ordinary log expense data for subjects who had zero or non-zero amounts (Duan, Manning, Morris, & Newhouse, 1984).

In the course of this study, both methods were developed. However, the results section presents the findings from the single-stage approach which had the advantage of simplicity. Modeling based on the two-stage approach in both the Rx Coverage and Rx Generosity samples yielded no greater insights to justify its greater complexity but did have consistency in regard to the direction of the model coefficient estimates (Appendix D). Results from the two-stage approach for both samples are available in the Appendix D, Sections D.1-D.4. Examples of the SAS programming for these models are in Appendix D, Sections D.5-D.8.

The statistical software used for the one-stage approach analyses was SAS (formerly known as Statistical Analysis System), versions 6.12

and 8.0 (SAS, 1998, 2000). For the models with specific events as the dependent variable, the generalized linear model procedure (PROC GENMOD) was used after adding 0.5 to the event number. A log Linear model was constructed where the distribution was Poisson and the link function was the natural logarithm function (SAS, 1997). Chi-Square test statistics were done of predictor variables for each specific event. Type 1 analysis was used for the Chi-Squares; the results from this process depend on the order in which the model terms were fit. Using this instead of Type 3[8] was preferable because of the inclusion of the interaction term in all the models. For the event model with Rx Coverage as the predictor variable, count-ratios within each insurance type were constructed with the reference group being "no prescription coverage", *i.e.*, those subjects who pay for all of their prescriptions out-of-pocket. The reference group model parameter value was always equal to 1.0. (An example of the SAS programming is in Appendix D, Section D.9.) For the event model with Rx Generosity as a predictor variable, count-ratios within each insurance type were also constructed with the reference group being "no prescription generosity". (An example of this programming is in Appendix D, Section D.10.) These ratios with 90 percent confidence intervals, when summarized in a table across years and by category, enabled a descriptive

[8] In Type 3 analysis, the sum of squares for each variable is computed as if each variable was entered last in the model. This means the effect of each variable is evaluated after all other variables have been accounted for. Type 3 analysis does not make sense—to remove the effect of the two predictor variables before the interaction term.

analysis of the possible effects of the predictor variables on service use per person.

In the models with total and specific expenditures as the dependent variables, the expenditure was transformed using the logarithm base 10 function. Model equations were built for both the Rx Coverage model and for the Rx Generosity model by adding $1 to the specific expenditure (log $ + $1). (An example of SAS programming is in Appendix D, Sections D.11-12.) To construct the model equations for expenditure, the linear model procedure (PROC GLM) for Unbalanced ANOVA was used. F-statistics were performed for the predictor variables. Expenditure-ratios with 90 percent confidence intervals within each insurance type were constructed similarly to the count-ratios in the event models; an example of this programming is in Appendix B.6.

The value of prescription drug coverage as a predictor variable was suspect since it represented a wide range of possible prescription coverage generosities. This was borne out in the single-stage Rx Coverage sample analyses (Adjusted Total Specific Events + 0.5) and (Adjusted Total or Specific Health $ + $1). Very few dependent variables were found to depend significantly on the Rx Coverage variable as a main effect or on its interaction with the insurance coverage variable. The only consistent pattern seen in the ratio tables was the importance that prescription coverage had on increasing prescription expenditure and events. A

summary table and the ratio tables are in Appendix E.1- E.3. The results section will, for the most part, present the findings from the following model equations from the remaining Rx Generosity Sample, namely:

Adjusted Total Specific Events + 0.5 = f (Control Variables, Ins.Type, Rx Gen., Ins*RxGen)

Log (Adjusted Total or Specific Health $ + $1) = f (Control Variables, Ins.Type, Rx Gen, Ins*RxGen)

CHAPTER FIVE

RESULTS

5.1 Ratio table development

Both count-ratio and expenditure-ratio tables were developed based on the model equations using the model parameter estimates for the main effects and the interaction terms (Appendix F.1-F.2). Significant control variables in the analyses are listed in Appendix F.3. To help in the explanation of the ratio tables, fragments of Table F.1a are reproduced here as an example to help read the Appendices which contain the tables.

INS92 (ns) **GENrx (C.S. 22.92, P = .0001)** **INS92*GENrx (C.S.31.78, P = .0002)**	Model Coefficient	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

In the above fragment, two predictor variables, insurance 92 (INS92) and generosity of prescription coverage (GENrx), and their interaction term (INS92*GENrx) are listed along with significance status bold-faced. The model coefficient estimate, its standard error (SE) and confidence intervals (CI) are recorded. Since SAS outputs these numbers in natural logarithm form, they have been converted to an ordinary count-ratio scale. These are the entries in the "Estimate Converted" column shown below.

	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.0806	1.08	0.07	-0.03	0.19	0.97	1.21
PRIVATE	-0.0016	1.00	0.04	-0.07	0.07	0.93	1.07
PRIVATE + HMO	-0.0829	0.92	0.13	-0.30	0.13	0.74	1.14

The first block of rows in the fragment above represents the main effect of insurance. It shows model parameter estimates for the "no generosity" subgroups (genNONE) of each of the four insurance groups. The parameter estimates for the genNONE levels of MEDICARE HMO, PRIVATE, and PRIVATE + HMO insurance groups are referenced to the MEDICARE-only insurance group. Hence, the coefficient for the MEDICARE-only group is always 0.0 on the logarithmic scale and 1.0 on the (ordinary) converted scale. The parameter estimate of MEDICARE HMO is 1.08, which means that when compared to the MEDICARE-only group, the genNONE MEDICARE HMO group had 8 percent more inpatient hospital events per person in 1992. This number does NOT say that the MEDICARE HMO group as a whole had 8 percent more inpatient hospital events per person, when not restricted to the genNONE level.

The next set of four rows in the table fragment below depicts the parameter estimates for each prescription generosity level within the MEDICARE HMO group, with "no generosity" MEDICARE HMO being the reference group (MCHMOgenNONE). In this set of comparisons, the main

effect of insurance has been removed and one can see the effect of prescription generosity within the plan.

For example, the "Good prescription generosity" level within MEDICARE HMO (MCHMOgenGOOD) had 8 percent fewer inpatient hospital events per person in 1992 than the MCHMOgenNONE subgroup. The next set of four rows depicts the corresponding parameter estimates in each of the other two insurance groups, PRIVATE and PRIVATE + HMO.

	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	-0.0622	0.94	0.09	-0.21	0.08	0.81	1.09
MCHMOgenFAIR	-0.0114	0.99	0.07	-0.12	0.10	0.88	1.10
MCHMOgenGOOD	-0.0797	0.92	0.09	-0.23	0.07	0.79	1.08
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.0444	1.05	0.03	-0.00	0.09	1.00	1.09
PRIVATEgenFAIR	0.1314	1.14	0.02	0.09	0.17	1.10	1.19
PRIVATEgenGOOD	0.0324	1.03	0.03	-0.02	0.09	0.98	1.09
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.0634	1.07	0.18	-0.23	0.36	0.79	1.43
PRIV.+ HMOgenFAIR	0.0300	1.03	0.15	-0.26	0.27	0.81	1.31
PRIV.+ HMOgenGOOD	0.5029	1.65	0.16	0.25	0.76	1.22	2.14

Comparing event-ratios between insurance plans, *e.g.,* MCHMOgenGOOD insurance to PRIVATEgenGOOD, the following computation would have to be done. The converted model estimate for the MCHMOgenGOOD interaction term (0.92) must be multiplied by the main effect of the MEDICARE HMO insurance (1.08). The product, 0.99, is the numerator. The interaction term for PRIVATEgenGOOD (1.03) is multiplied by the main effect of the PRIVATE insurance (1.00). The product, 1.03, is

the denominator. The resultant ratio 0.99/1.03 equals 0.96. This number depicts that in 1992, the MCHMOgenGOOD group had 4 percent less inpatient hospital events compared to the PRIVATEgenGOOD group. When comparing across insurance groups, confidence intervals are not available without setting up the estimate conditions in SAS.

5.2 Results in regard to Specific Aim A_1

Determine if elderly possessing Medicare + supplemental insurance + prescription drug coverage had lower *specific* health care service use when compared to elderly possessing Medicare + supplemental insurance without prescription drug coverage.

Inpatient hospital, outpatient hospital, medical provider and prescription events were often statistically associated with the insurance variable (See Appendix E.2). In particular, the PRIVATE insurance was associated with increased use in these specific service areas per person per year.

Increased prescription events were often statistically associated with prescription drug coverage. Since statistical significance was not consistently found with prescription drug coverage in other categories, no comment can be made in regard to its impact there.

5.3 Results in regard to Specific Aim A_2

Determine if, and to what extent, generosity of Prescription drug coverage significantly influenced the estimates developed in Specific Aim A_1.

Using the count-ratio tables developed from the model equations for the specific health care events, (Appendix F.1), several comparative summary tables were made to view the four-year results by event category. A variety of summary tables can be constructed using comparisons across different insurance types and generosity levels in ordinary (non-log) scale with 90 percent confidence intervals.[9] However, only comparisons between the four insurances' respective reference levels (genNONE), and between generosity levels within PRIVATE and MEDICARE HMO insurance groups were analyzed for this report. These comparisons

- reveal the differences in specific health care service use of elders having different insurance types, all of whom pay for their medications completely out-of-pocket. This shows the relationship between supplemental insurance or HMO and service use.
- reveal the differences in specific health care service use of elders having different prescription generosities within an insurance type, *e.g.,* < 20 percent out-of-pocket versus > 99 percent out-of-pocket within the PRIVATE insurance type. This shows whether having a generous prescription coverage affects service use in other service areas (within the same insurance).

[9] These tables are not meant to suggest anything longitudinal since each year represents a partially-different sample; they help to see consistent year-to-year patterns in the relationship that generosity has on health care service use. The Miscellaneous category was eliminated due to the small number of persons who had these events and the lack of statistical significance of the Rx Generosity variable

Table 6a. Inpatient Hospital Events By Year, By Insurance (genNONE)

Insurance Group	1992	1993	1994	1995
MEDICARE-only	1.00	1.00	1.00	1.00
MCHMO	1.08 (0.97-1.21)	0.94 (0.82-1.07)	0.90 (0.79-1.02)	1.01 (0.88-1.15)
PRIVATE	1.00 (0.93-1.07)	1.03 (0.96-1.10)	1.07 (1.00-1.15)	1.02 (0.95-1.10)
PRIV.+HMO	0.92 (0.74-1.14)	1.36 (1.14-1.63)	1.31 (1.11-1.54)	0.92 (0.77-1.09)

Table 6b. Medical Provider Events By Year, By Insurance (genNONE)

Insurance Group	1992	1993	1994	1995
MEDICARE-only	1.00	1.00	1.00	1.00
MCHMO	0.97 (0.84-1.12)	1.02 (0.87-1.19)	0.74 (0.63-0.88)	0.79 (0.66-0.94)
PRIVATE	1.21 (1.12-1.32)	1.29 (1.18-1.40)	1.23 (1.13-1.34)	1.11 (1.02-1.21)
PRIV.+HMO	1.06 (0.83-1.36)	1.25 (1.00-1.56)	1.21 (0.98-1.48)	0.75 (0.60-0.94)

Table 6c. Outpatient Hospital Events By Year, By Insurance (genNONE)

Insurance Group	1992	1993	1994	1995
MEDICARE-only	1.00	1.00	1.00	1.00
MCHMO	1.11 (0.91-1.37)	1.22 (0.98-1.51)	0.90 (0.73-1.13)	1.01 (0.81-1.25)
PRIVATE	1.16 (1.02-1.31)	1.19 (1.05-1.36)	1.09 (0.96-1.24)	1.09 (0.96-1.22)
PRIV.+HMO	0.77 (0.50-1.20)	0.95 (0.65-1.38)	1.17 (0.86-1.59)	0.95 (0.71-1.27)

Table 6d. Prescription Events By Year, By Insurance (genNONE)

Insurance Group	1992	1993	1994	1995
MEDICARE-only	1.00	1.00	1.00	1.00
MCHMO	0.96 (0.83-1.10)	0.93 (0.80-1.09)	0.93 (0.81-1.07)	1.02 (0.87-1.19)
PRIVATE	1.07 (0.99-1.16)	1.02 (0.94-1.10)	1.03 (0.95-1.11)	1.11 (1.02-1.21)
PRIV.+HMO	0.96 (0.74-1.24)	0.74 (0.57-.96)	0.98 (0.79-1.21)	0.90 (0.72-1.11)

Table 7. Each Insurance Type (genNONE) Compared to Medicare (1.00), By Year, By Service Use Category

MedicareHMO (MCHMO)				
Service Event	1992	1993	1994	1995
Inpatient Hospital	1.08 (0.97-1.21)	0.94 (0.82-1.07)	0.90 (0.79-1.02)	1.01 (0.88-1.15)
Medical Provider	0.97 (0.84-1.12)	1.02 (0.87-1.19)	0.74 (0.63-0.88)	0.79 (0.66-0.94)
Outpat. Hospital	1.11 (0.91-1.37)	1.22 (0.98-1.51)	0.90 (0.73-1.13)	1.01 (0.81-1.25)
Rx	0.96 (0.83-1.10)	0.93 (0.80-1.09)	0.93 (0.81-1.07)	1.02 (0.87-1.19)
Private (PRIVATE)				
Service Event	1992	1993	1994	1995
Inpatient Hospital	1.00 (0.93-1.07)	1.03 (0.96-1.10)	1.07 (1.00-1.15)	1.02 (0.95-1.10)
Medical Provider	1.21 (1.12-1.32)	1.29 (1.18-1.40)	1.23 (1.13-1.34)	1.11 (1.02-1.21)
Outpat. Hospital	1.16 (1.02-1.31)	1.19 (1.05-1.36)	1.09 (0.96-1.24)	1.09 (0.96-1.22)
Rx	1.07 (0.99-1.16)	1.02 (0.94-1.10)	1.03 (0.95-1.11)	1.11 (1.02-1.21)
Private+HMO (PRIV.+HMO)				
Service Event	1992	1993	1994	1995
Inpatient Hospital	0.92 (0.74-1.14)	1.36 (1.14-1.63)	1.31 (1.11-1.54)	0.92 (0.77-1.09)
Medical Provider	1.06 (0.83-1.36)	1.25 (1.00-1.56)	1.21 (0.98-1.48)	0.75 (0.60-0.94)
Outpat. Hospital	0.77 (0.50-1.20)	0.95 (0.65-1.38)	1.17 (0.86-1.59)	0.95 (0.71-1.27)
Rx	0.96 (0.74-1.24)	0.74 (0.57-.96)	0.98 (0.79-1.21)	0.90 (0.72-1.11)

Inpatient hospital, outpatient hospital, medical provider, and prescription service use were most often statistically significantly associated with the insurance variable (Appendix F.1)

Comparing elders who pay for their medications almost completely out-of pocket in the three insurance groups to elders in the MEDICARE-only group (Tables 6a-d, 7), the following patterns were seen:

1. PRIVATE insurance was statistically significantly associated with increased number of events per person in the Medical Provider and Outpatient Hospital Events categories.

2. No insurance type was associated with increased Inpatient Hospital and Prescription Events (most confidence intervals contained 1.00).

3. MEDICARE HMO and PRIVATE + HMO insurance groups tended to be associated with fewer service events compared to the PRIVATE group.

Table 8a. Inpatient Hospital Events (PRIVATE) By Year, By Generosity

Generosity of Rx Coverage	1992	1993	1994	1995
genNONE	1.00	1.00	1.00	1.00
genPOOR	1.05 (1.001.09)	1.01 (0.97-1.06)	1.05 (1.01-1.10)	1.05 (1.00-1.11)
genFAIR	1.14 (1.10-1.19)	1.08 (1.04-1.13)	1.11 (1.06-1.15)	1.07 (1.03-1.12)
genGOOD	1.03 (0.98-1.09)	1.07 (1.01-1.14)	0.99 (0.94-1.05)	1.03 (0.98-1.09)

Table 8b. Outpatient Hospital Events (PRIVATE) By Year, By Generosity

Generosity of Rx Coverage	1992	1993	1994	1995
genNONE	1.00	1.00	1.00	1.00
genPOOR	1.11 (1.04-1.19)	1.27 (1.18-1.37)	1.12 (0.93-1.36)	1.15 (1.07-1.24)
genFAIR	1.23 (0.88-1.72)	1.17 (1.10-1.26)	1.21 (0.89-1.64)	1.13 (1.05-1.20)
genGOOD	1.19 (0.89-1.59)	1.11 (1.01-1.22)	1.26 (0.86-1.86)	1.21 (1.12-1.31)

Table 8c. Medical Provider Events (PRIVATE) By Year, By Generosity

Generosity of Rx Coverage	1992	1993	1994	1995
genNONE	1.00	1.00	1.00	1.00
genPOOR	1.11 (1.06-1.16)	1.08 (1.03-1.13)	1.11 (1.06-1.17)	1.17 (1.11-1.23)
genFAIR	1.19 (1.13-1.24)	1.14 (1.09-1.19)	1.15 (1.10-1.20)	1.14 (1.09-1.19)
genGOOD	1.03 (0.97-1.10)	1.06 (1.00-1.12)	1.07 (1.01-1.13)	1.11 (1.05-1.18)

Table 8d. Prescription Events (PRIVATE) By Year, By Generosity

Generosity of Rx Coverage	1992	1993	1994	1995
genNONE	1.00	1.00	1.00	1.00
genPOOR	1.27 (1.21-1.33)	1.23 (0.88-1.72)	1.17 (1.11-1.23)	1.21 (1.15-1.28)
genFAIR	1.42 (1.36-1.48)	1.35 (0.82-2.21)	1.29 (1.24-1.35)	1.29 (1.24-1.35)
genGOOD	1.25 (1.18-1.33)	1.21 (0.89-1.64)	1.16 (1.10-1.23)	1.18 (1.11-1.25)

For specific service events, different prescription generosity levels were further examined within two insurance groups—PRIVATE and MEDICARE HMO. In the PRIVATE group (Tables 8a-d):

1. Compared to "No generosity" level (genNONE), genPOOR and genFAIR levels were statistically significantly associated with increased Inpatient Hospital Events per person per year; level genFAIR was associated with greater increases of these events than genPOOR.

2. For Outpatient Hospital Events, all levels of generosity were statistically significantly associated with increased events per person per year in 1993 and 1995; level genGOOD was associated with greater increases of these events than the other generosities.

3. For Medical Provider Events, all generosities were statistically significantly associated with increased events per person per year with the smaller increases in the genGOOD level compared to genFAIR and genPOOR.

4. For Prescription Events in 1992, 1994 and 1995, all generosities were statistically significantly associated with increased events per person per year with smaller increases in the genGOOD level compared to genPOOR or genFAIR.

Table 9a. Inpatient Hospital Events (MEDICARE HMO) By Year, By Generosity

Rx Generosity Level	1992	1993	1994	1995
genNONE	1.00	1.00	1.00	1.00
genPOOR	0.94 (0.81-1.09)	1.02 (0.86-1.21)	1.35 (1.15-1.58)	1.05 (0.89-1.24)
genFAIR	0.99 (0.88-1.10)	1.12 (0.99-1.28)	1.16 (1.03-1.32)	1.03 (0.91-1.17)
genGOOD	0.92 (0.79-1.08)	1.13 (0.98-1.32)	1.25 (1.09-1.44)	1.04 (0.90-1.21)

Table 9b. Outpatient Hospital Events (MEDICARE HMO) By Year, By Generosity

Rx Generosity Level	1992	1993	1994	1995
genNONE	1.00	1.00	1.00	1.00
genPOOR	1.31 (1.02-1.67)	0.84 (0.63-1.11)	1.26 (0.96-1.66)	0.91 (0.68-1.22)
genFAIR	1.10 (0.90-1.35)	0.80 (0.64 -0.99)	1.15 (0.93-1.42)	0.82 (0.66-1.02)
genGOOD	0.92 (0.70-1.22)	0.93 (0.73-1.20)	1.06 (0.96-1.17)	0.80 (0.62-1.04)

Table 9c. Medical Provider Events (MEDICARE HMO) By Year, By Generosity

Rx Generosity Level	1992	1993	1994	1995
genNONE	1.00	1.00	1.00	1.00
genPOOR	1.08 (0.90-1.30)	0.87 (0.71-1.06)	1.36 (1.11-1.67)	0.81 (0.64-1.04)
genFAIR	0.93 (0.81-1.08)	0.77 (0.66-0.91)	1.02 (0.86-1.20)	0.95 (0.80-1.13)
genGOOD	0.63 (0.50-0.79)	0.76 (0.63-0.91)	0.99 (0.82-1.21)	0.82 (0.67-1.01)

Table 9d. Prescription Events (MEDICARE HMO) By Year, By Generosity

Rx Generosity Level	1992	1993	1994	1995
genNONE	1.00	1.00	1.00	1.00
genPOOR	1.35 (1.13-1.60)	1.22 (1.01-1.47)	1.20 (1.00-1.44)	0.96 (0.78-1.18)
genFAIR	1.67 (1.45-1.91)	1.36 (1.18-1.58)	1.43 (1.25-1.64)	1.44 (1.25-1.67)
genGOOD	1.04 (0.86-1.26)	1.29 (0.85-1.97)	1.24 (1.06-1.46)	1.38 (1.17-1.64)

Prescription generosity levels were examined within the MEDICARE HMO insurance type (Tables 9a-c.). In the MEDICARE HMO group (Tables 9a-c.):

1. Compared to genNONE, genFAIR and genGOOD levels increased Inpatient Hospital Events per person in 1993 and 1994.
2. All levels of generosity increased Prescription Events per person compared to genNONE. Level genFAIR had larger increases of Prescription Events per person than genPOOR and genGOOD. The level genGOOD had the smallest increases compared to genPOOR and genFAIR.

5.4 Results in regard to Specific Aim B_1

Determine if elderly possessing Medicare + supplemental insurance + prescription drug coverage had lower *specific* health care expenditures when compared to elderly possessing Medicare + supplemental insurance without prescription drug coverage.

Inpatient hospital, outpatient hospital, medical provider and prescription expenditure were often statistically significantly associated with the insurance variable (Appendix E.3). In particular, PRIVATE insurance was associated with increased expenditure in these areas per person per year. Increased prescription expenditure was often statistically associated with prescription drug coverage. Since statistical significance was not found with the Prescription drug coverage in other expenditure categories, no comment can be made in regard to its impact there.

Since HMO plans were capitated, the expenditure information for the MEDICARE HMO and PRIVATE + HMO insurance groups was considered misleading and not analyzed.

5.5 Results in regard to Specific Aim B_2

Determine if, and to what extent, generosity of Prescription drug coverage significantly influenced the estimates developed in Specific Aim B_1.

Expenditure-ratio tables were developed (similarly as count-ratio tables) from the model equations for total and specific health care expenditure (Appendix F.2). Since HMO plans were capitated, the expenditure information for the MEDICARE HMO and PRIVATE + HMO

insurance groups was considered misleading and not analyzed. Comparative summary tables of total and specific service expenditure were made to view the four-year results between the genNONE levels of MEDICARE-only and PRIVATE insurance groups, and between the various prescription generosity levels within the PRIVATE insurance group for this report. These comparisons

- reveal the differences in specific health care expenditures of elders having different insurance types, all of whom pay for their medications completely out-of-pocket. This shows the relationship between supplemental insurance and expenditure.
- reveal the differences in specific health care expenditures of elders having different prescription generosities within the PRIVATE insurance group, *e.g.*, < 20 percent out-of-pocket versus > 99 percent out-of-pocket. This shows whether having generous prescription coverage affects expenditure in other service areas (within the same insurance).

Table 10. PRIVATE Insurance Group (genNONE) Compared to Medicare (1.00), By Service Expenditure Category, By Year

Expenditure Category	1992	1993	1994	1995
Inpatient Hospital	0.94 (0.68-1.30)	1.08 (0.78-1.50)	1.32 (0.94-1.85)	1.10 (0.78-1.56)
Medical Provider	1.73 (1.49-1.99)	1.74 (1.52-2.00)	1.59 (1.38-1.83)	1.71 (1.48-1.98)
Outpat. Hospital	1.86 (1.40-2.47)	1.29 (0.97-1.72)	1.36 (1.02-1.82)	1.57 (1.17-2.12)
Rx	1.19 (1.06-1.33)	1.17 (1.04-1.31)	1.16 (1.03-1.30)	1.12 (0.99-1.26)
Total Health Care	1.41 (1.25-1.59)	1.35 (1.20-1.51)	1.31 (1.16-1.47)	1.28 (1.13-1.44)

Inpatient hospital, outpatient hospital, medical provider, and prescription expenditure was most often statistically significantly associated with the insurance variable (Appendix F.2). These same areas

of health care expenditure were most often statistically significantly associated with prescription generosity.

Comparing elders who pay for their medications almost completely out-of pocket in the PRIVATE insurance group to elders in the MEDICARE-only group (Table 10), the following patterns were seen:

1. No pattern was seen for the Inpatient Hospital category.
2. PRIVATE insurance was statistically significantly associated with increased Medical Provider and Outpatient Hospital Expenditure per person in all four years.[10]
3. PRIVATE insurance was statistically significantly associated with increased Prescription Expenditure per person in all four years.[10]

Table 11a. PRIVATE Insurance of Inpatient Hospital Expenditure By Year

Rx Generosity Level	1992	1993	1994	1995
genNONE	1.00	1.00	1.00	1.00
genPOOR	1.23 (1.01-1.49)	1.27 (1.03-1.57)	1.09 (0.88-1.36)	1.40 (1.10-1.78)
genFAIR	1.49 (1.23-1.81)	1.42 (1.17-1.73)	1.26 (1.04-1.53)	1.45 (1.18-1.78)
genGOOD	1.13 (0.88-1.46)	1.07 (0.82-1.40)	0.90 (0.70-1.15)	1.06 (0.83-1.37)

Table 11b. PRIVATE Insurance of Outpatient Hospital Expenditure By Year

Rx Generosity Level	1992	1993	1994	1995
genNONE	1.00	1.00	1.00	1.00
genPOOR	1.20 (1.01-1.43)	1.53 (1.27-1.84)	1.30 (1.08-1.58)	1.31 (1.07-1.61)
genFAIR	1.35 (1.14-1.60)	1.55 (1.30-1.84)	1.39 (1.17-1.65)	1.24 (1.04-1.48)
genGOOD	1.41 (1.13-1.7)	1.07 (0.85-1.35)	1.04 (0.84-1.30)	1.34 (1.08-1.67)

[10] The observed increases were approximately equal from year to year, and were statistically significant in the preponderance of years.

Table 11c. PRIVATE Insurance of Medical Provider Expenditure By Year

Rx Generosity Level	1992	1993	1994	1995
genNONE	1.00	1.00	1.00	1.00
genPOOR	1.11 (1.02-1.22)	1.11 (1.02-1.22)	1.17 (1.06-1.28)	1.25 (1.13-1.39)
genFAIR	1.25 (1.15-1.36)	1.20 (1.10-1.31)	1.24 (1.14-1.34)	1.18 (1.08-1.29)
genGOOD	1.08 (0.96-1.21)	1.12 (1.00-1.25)	1.08 (0.97-1.20)	1.20 (1.08-1.34)

Table 11d. PRIVATE Insurance of Prescription Expenditure By Year

Rx Generosity Level	1992	1993	1994	1995
genNONE	1.00	1.00	1.00	1.00
genPOOR	1.55 (1.45-1.66)	1.60 (1.49-1.72)	1.42 (1.32-1.54)	1.60 (1.48-1.74)
genFAIR	1.99 (1.86-2.13)	1.87 (1.75-2.00)	1.65 (1.54-1.77)	1.80 (1.68-1.94)
genGOOD	2.52 (2.31-2.76)	2.61 (2.38-2.86)	2.40 (2.20-2.62)	2.82 (2.58-3.07)

For specific service expenditures, different prescription generosity levels were further examined within the PRIVATE group (Tables 11a-d):

1. Compared to genNONE, genPOOR and genFAIR levels of prescription coverage were statistically significantly associated with increased Inpatient Hospital Expenditures per person per year, with genFAIR having greater increases compared to genPOOR.

2. With the preponderance of parameter estimates greater than zero in Outpatient Hospital Expenditures, all levels of prescription generosity were associated with increases in this expenditure when compared to genNONE. As prescription coverage became more generous, greater increases were seen in Outpatient Hospital Expenditures per person.

3. Compared to genNONE, all levels of prescription generosity were statistically significantly associated with increased Medical Provider Expenditures per person per year. The genGOOD level showed the smallest increase in Medical Provider Expenditure. With the exception of 1995, the genFAIR level showed the greatest increase in Medical Provider Expenditures.

4. All levels of prescription generosity were statistically significantly associated with increased Prescription Expenditures per person per year compared to genNONE. Without exception, the more generous the coverage, the greater the increase. These were the most dramatic cost increases seen in the analyses with genGOOD, corresponding to a two and one-half times (or 150 percent) the prescription expenditures compared to those in genNONE.

5.6 Results in regard to Specific Aim C_1

Determine if elderly possessing Medicare + supplemental insurance + prescription drug coverage had lower *total* health care expenditures when compared to elderly possessing Medicare + supplemental insurance without prescription drug coverage.

Total expenditure was often statistically significantly associated with the insurance variable (Appendix D.3). In particular, PRIVATE insurance was statistically significantly associated with increased total expenditure per person per year. Total expenditure was not often associated with prescription drug coverage.

Since HMO plans were capitated, the total expenditure information for the MEDICARE HMO and PRIVATE + HMO insurance groups was considered misleading and not analyzed.

5.7 Results in regard to Specific Aim C_2

Determine if, and to what extent, generosity of Prescription drug coverage significantly influenced the estimates developed in Specific Aim C_1.

Since HMO plans were capitated, the expenditure information for the MEDICARE HMO and PRIVATE + HMO insurance groups was considered misleading and not analyzed.

Table 11e. PRIVATE Insurance of Total Health Care Expenditure By Year

Rx Generosity Level	1992	1993	1994	1995
genNONE	1.00	1.00	1.00	1.00
genPOOR	1.17 (1.09-1.26)	1.25 (1.16-1.35)	1.16 (1.07-1.25)	1.35 (1.24-1.47)
genFAIR	1.37 (1.28-1.47)	1.31 (1.22-1.41)	1.27 (1.19-1.36)	1.29 (1.20-1.39)
genGOOD	1.40 (1.28-1.54)	1.34 (1.22-1.47)	1.24 (1.14-1.36)	1.44 (1.32-1.57)

Using the comparative summary tables (Table 10 and Table 11e), four-year results between the genNONE levels of MEDICARE-only and PRIVATE insurance groups, and between the various prescription generosity levels within the PRIVATE insurance group were scrutinized for patterns across the years. The comparisons

- reveal the differences in total health care expenditures of elders having different insurance types, all of whom pay for their medications completely out-of-pocket. This shows the relationship between supplemental insurance and expenditure.
- reveal the differences in total health care expenditure of elders having different prescription generosities within the PRIVATE insurance group.

Comparing elders who pay for their medications almost completely out-of pocket in the PRIVATE insurance group to elders in the MEDICARE-only group (Table 10), the following patterns were seen:

1. PRIVATE insurance that had "no prescription generosity" was statistically significantly associated with increased total health care expenditures per person per year.

For specific service expenditures, different prescription generosity levels were further examined within the PRIVATE group (Table 11e):

1. Compared to genNONE, all generosity levels were statistically significantly associated with increased Total Health Care Expenditures per person per year. For the most part, the more generous the prescription coverage, the greater the increase.

CHAPTER SIX

DISCUSSION

6.1 The results of analyses using the Rx Coverage predictor variable

Specific Aim A_1. Determine if elderly possessing Medicare + supplemental insurance + prescription drug coverage had lower *specific* health care service use when compared to elderly possessing Medicare + supplemental insurance without Prescription drug coverage.

Specific Aim B_1. Determine if elderly possessing Medicare + supplemental insurance + prescription drug coverage had lower *specific* health care expenditures when compared to elderly possessing Medicare + supplemental insurance without prescription drug coverage.

Specific Aim C_1. Determine if elderly possessing Medicare + supplemental insurance + prescription drug coverage had lower *total* health care expenditures when compared to elderly possessing Medicare + supplemental insurance without prescription drug coverage.

This study was aimed to determine the effects of outpatient prescription drug coverage on health care service use and expenditures of the elderly. (It was expected that prescription coverage would result in direct increases in prescription events and/or expenditures.) In particular, it was hoped that prescription coverage and/or generosity of the coverage would result in decreases in other health care service and expenditure areas, presumably from better disease management through pharmaceuticals. Indeed, results of an earlier study (Lingle et al.) suggested such a decrease. (They observed a 25 percent decrease in

inpatient hospital expenditure per elder per year and associated this decrease with outpatient prescription drug coverage)(Lingle et al., 1987).

However, in regard to Specific Aims A_1, B_1, and C_1, Rx Coverage as a predictor variable did not show significance in any service category except prescription drug. (The pre-study power analysis revealed there was enough sample size to see an effect of 20 percent.) However, even though prescription drug coverage was not statistically significant (Appendices E.2 and E.3), the effect sizes consistently were estimated to increase events/expenditures in the range of 2 to 10 percent among the service categories. The consistency of the effect sizes from category-to-category and year-to-year leads one to believe that the effects are genuine, even though statistical significance was not established.

The significance tests failed because the effect sizes were too small to trip the significance threshold. In retrospect, it is likely that an effect of 20 percent was much too large, given the shortcomings of the Lingle et al. study, and the realistic effect that prescription coverage could have on other service use.

The effect sizes were smaller in the prescription drug coverage analyses than in the Rx Generosity analyses for two reasons: 1) lack of specificity in the dichotomous variable of the Rx Coverage variable, and 2) differences in restrictiveness between the two samples (Rx Coverage versus Rx Generosity).

In regard to reason number one, Rx Coverage defined coverage in terms of "yes" or "no". The mere fact of having coverage ("yes") included such a wide range of possible levels of coverage as to be almost meaningless, i.e., the variable did not distinguish between "meaningful" coverage and "no coverage".

In regard to reason number two, the Rx Coverage sample was not as restrictive as the Rx Generosity sample that contained only those elders who had a prescription event/expense during the study year. Although this restriction diminished the Rx Generosity sample size, it had the beneficial effect of eliminating those persons from the Rx Coverage sample who generally had limited medical expenses. One can see evidence of this in Appendix C, Table C.9. (The percentage of elders who had "excellent" and "very good" self-perceived health status scores was consistently higher in the Rx Coverage sample than in the Rx Generosity sample, year-to-year.) Put another way, the Rx Coverage sample included a high percentage of medical care non-users who tended to water down the effects. So one observed these effects in the Rx Coverage analyses, which were in the same direction as those seen in the Rx Generosity analyses, but ended up being weakened by non-users.

For discussion of the results using Rx Generosity Sample, the following sections are framed around the two predictor variables present in

the Rx Generosity models: type of supplemental insurance and generosity of prescription coverage.

6.2 Effect of supplemental insurance with no prescription generosity

This section is included for completeness because estimates of effects of insurance on events and expenditure were developed as part of the modeling process and to better understand the effect of insurance itself on use and expenditure. However, these results are not directly related to the Specific Aims as described in Chapter Three.

There was no observed statistically significant influence of insurance on Inpatient Hospital Events and Expenditures per person. (The 1991 study by McCall et al., using 1981 data, also had a result with a lack of significance in this service category) (McCall et al., 1991). There are two possible reasons for this: 1) among the insurance groups, there was a lack of difference in physician gate-keeping behavior, and 2) there was a lack of differentiation in hospital coverage benefits among the insurance groups.

In regard to reason number one, although Medicare supplemental insurance gives elders additional hospital benefits (Chapter Two), it is the physician who determines most of the hospitalization events. In fact, physicians often use non-medical factors in their decision-making regarding inpatient hospital admission, *e.g.*, hospital occupancy rates, group practice, a busier outpatient practice (Rosenblatt & Moscovice, 1984). Since the

introduction of managed care into the health care field, their cost-containment strategies to decrease the number of hospitalizations are firmly established. With most physicians in group practice and their group's acceptance of a wide variety of insurance plans, the cost-containment philosophy would influence physician behavior regardless of patient insurance. In essence, the physician hospitalization gate-keeping behavior may not have been differently-influenced by disparate insurance groups.

As for reason number two, there may also be a lack of differentiation between the different insurance groups in terms of hospitalization coverage. Most insurances cover the same major operations and similarly control expenses by allowing a certain number of hospitalization days for a particular diagnosis. This lack of differentiation may have made it harder to find differences between insurance groups.

PRIVATE insurance, in itself, was consistently associated with increased Medical Provider Events and Expenditures per person per year. (This result also occurred in the McCall et al. study.) It is reasonable to conclude this association is a combination of the following mechanisms:

- insurance effect--elders who purchase supplemental insurance react to the removal of cost-disincentives and do, in fact, visit medical providers more often than they would without the supplemental insurance. The elder may also be less restricted on the type of physician he is able to see. Specialist visits are usually more expensive compared to a generalist. Also, a visit to a specialist may incur more costly lab tests.

- self-selection bias--elders who purchase the supplemental insurance may expect to visit the provider more often than the norm either because of their known health conditions or an interest in personal health care.

Reason number one implies increases in consumption of medical resources while number two implies a cost-shifting from the individual's out-of-pocket to the insurance's pocket.

PRIVATE insurance, in itself, was consistently associated with increased Outpatient Hospital Expenditures per person by amounts 29 to 86 percent. (Increases in corresponding Events were consistently estimated at 9 to 9 percent. These increases did not always test as statistically significant but their consistency from year-to-year suggests that they were nonetheless genuine.) This suggests that there were some increases in number of Events and that costs per Event were definitely higher in the PRIVATE insurance group. This could be due to higher charges for outpatient hospital procedures across the board or could be an indication that this insurance group received more elaborate procedures on an outpatient basis.

As seen in Outpatient Hospital Events and Expenditures, there were substantial and statistically significant increases in Prescription Expenditures per person across the years by amounts estimated at 12 to 19 percent. (Increases in corresponding Prescription Events were consistently estimated at 2 to 11 percent. These increases did not always test as

statistically significant but their consistency from year-to-year suggests that they were nonetheless genuine.)

PRIVATE insurance, itself, increased Prescription Events. It would seem that the number of Prescription Events increased at a smaller rate than Medical Provider Events. (One would expect that more visits to a physician would result in more prescriptions and therefore more prescription events) (Miles, 1977; Trends, 1998). This may suggest that a widely-held assumption that visiting the physician generates a prescription is not a correct one when considering the elderly population. It may also suggest that medical provider events do generate more prescriptions but the lack of prescription coverage may deter an elder from getting the prescription filled.

PRIVATE insurance, in itself, is associated with increased Total Health Care Expenditures per person per year. This increase does not appear to be driven by Inpatient Hospital expenses but by a combination of increases in Medical Provider, Outpatient and Prescription expenses. Those three sub-categories of service were described previously.

Even though the statistical significance was not evident, the genNONE levels of MEDICARE HMO and PRIVATE + HMO insurance groups tended to have fewer events in all the service categories compared to PRIVATE. This may allude to adverse selection by the HMOs, *i.e.*, selecting healthier elders for HMO coverage and hence, their less need or use of prescription medications. This may also suggest the benefit of the

preventive medicine measures present in the MEDICARE HMO programs. This result appears to concur with results found in the 1998 Nelson et al. study (Nelson et al., 1998). In their four-year prospective study, inpatient and outpatient hospitalizations were 15 percent lower for persons possessing HMO insurance compared to persons possessing fee-for-service (PRIVATE) insurance. However, one needs to be cautious with the comparison because the categories of events in that study were different than those in this study, their study sample was not limited to elders as this study was, and lastly, the discussion in this section is restricted to elders with no prescription coverage whereas prescription coverage was not addressed in the Nelson et al. study.

6.3 Effect of various levels of prescription generosity within an insurance group

Specific Aim A_2. Determine if, and to what extent, generosity of prescription drug coverage significantly influenced the estimates developed in Specific Aim A_1, *i.e.*, Medicare + supplemental insurance + prescription generosity influenced lower specific health care service use when compared to elderly possessing Medicare + supplemental insurance with no prescription generosity.

Specific Aim B_2. Determine if, and to what extent, generosity of prescription drug coverage significantly influenced the estimates developed in Specific Aim B_1, *i.e.*, Medicare + supplemental insurance + prescription generosity influenced lower specific health care expenditures when compared to elderly possessing Medicare + supplemental insurance with no prescription generosity.

Specific Aim C_2. Determine if, and to what extent, generosity of prescription drug coverage significantly influenced the estimates developed in Specific Aim C_1, *i.e.*, Medicare + supplemental insurance + prescription generosity influenced lower total health care expenditures when compared

to elderly possessing Medicare + supplemental insurance without prescription generosity.

Within the levels of prescription generosities of the PRIVATE insurance group, the genPOOR and genFAIR levels were statistically significantly associated with increased Inpatient Hospital Events and Expenditures per person per year (relative to genNONE). The genGOOD levels of prescription coverage were consistently associated with increased Inpatient Hospital Events and Expenditure, however these increases were smaller than the increases associated with genPOOR and genFAIR levels and in fact, were never determined to be statistically significantly greater than the baseline genNONE levels. I will first address the increases associated with all generosity (since these are easiest to interpret). Two explanations for this phenomenon are: 1) self-selection bias, and possibly, 2) polypharmacy.

In regard to the first explanation, elders who possess a supplemental plan with a prescription benefit either know of, or anticipate the need for, prescription drugs. One can then assume these elders to be less healthy and to be at-risk for hospitalization. Although the model equations controlled for a variety of health status variables, there were many that were not included, *e.g.*, type of chronic disease, and these may have influenced hospital events and expenditures.

Additionally, one could postulate that supplemental prescription coverage encouraged greater prescription use and contributed to the overuse of prescription medications. This overuse, or polypharmacy, could have increased the number of adverse drug reactions which, in the elderly population, can lead to hospitalizations. There is evidence use of certain drugs (warfarin, prednisone, theophylline, etc.) are implicated in hospitalizations related to adverse drug reactions (Col et al., 1990).

As to the issue of genGOOD levels having smaller increases in Inpatient Hospital Events and Expenditures compared to genPOOR and genFAIR levels, two possibilities come to mind. First, different degrees of self-selection may play a role. Generally-speaking, individually-purchased prescription drug coverage is less generous than drug coverage acquired though a group-purchase (employer). Individually-purchased prescription coverage is usually in the POOR to FAIR range. Coverage in the GOOD range is normally obtainable through group purchase (employer). Elders who acquire such coverage (group purchase, genGOOD level) often obtain it at little or no extra cost. In such cases, self-selection bias, based on anticipated use, can be expected to play a much lesser role than in the case of elders who are paying substantial out-of-pocket costs for individually-purchased prescription drug coverage.

The second possible explanation why the level of genGOOD prescription coverage is associated with smaller increases in Inpatient

Hospital Events and Expenditures than genPOOR and genFAIR levels. It may be that provision of a truly generous drug does contribute to overall good health and resulting lower inpatient hospital events and expenditure. In this researcher's opinion, however attractive this conclusion may be, it would be presumptuous to assume its correctness without further research to understand the contributions of the various biases and insurance effects in this service category.

Within the levels of prescription generosities of the PRIVATE insurance group, all levels of generosity were associated with increased Medical Provider Events and Expenditures. However, in the genGOOD levels, the increase was smaller than the increases from the other generosity levels. This pattern is the same one seen in the Inpatient Hospital service category (except in the present case, the genGOOD level is statistically significantly higher than the genNONE level). The reader is referred to the previous discussion about Inpatient Hospital Events and Expenditure for possible interpretations for these results.

Following the assumption that Medical Provider Events influence Prescription Events and Expenditures, one expected (and observed) increases in Prescription Expenditures per person per year with all levels of generosity other than genNONE. It is also logical to assume that the more generous the coverage, the more prescriptions would be filled. Therefore, it was not surprising to observe the larger increases in Prescription

Expenditures per person in the genGOOD level. However, there were smaller increases in Prescription Events per person in the genGOOD level.

One possible explanation is that the more generous prescription plans contained formularies which allowed for more brand name drugs (more expensive than generics)(Mott & Krehling, 1998) and/or allowed for a 100-day supply per prescription fill, *i.e.,* less prescription events but each event was more expensive. Continuing with the assumption that supplemental insurance itself influenced the type of medical provider seen, if more specialists were seen by this group, the more likely the prescription written was for a brand name drug, typically more expensive than generic drug. This may also have contributed to more expensive Prescription Events per person.

When examining prescription generosity within the PRIVATE insurance group, increases in all four service categories influenced total expenditures per person per year. Additionally, the more generous the level, the greater the total expenditure per person per year. It is not known which specific category influenced the total expenditure category the most.

Complementary decreases were expected but not evident when examining MEDICARE HMO service events since a small number of persons enrolled in this group contributed to a lack of statistical significance. These results cannot corroborate the 1997 study by Johnson et al. (Johnson et al., 1997).

6.4 Implications of results on public policy

Overall, the results from this research effort showed an association between prescription coverage at all levels of generosity and increases in use and expenditure in the four main health care service categories, namely inpatient hospital, outpatient hospital, medical provider and prescription drug. The patterns were, for the most part, consistent from year-to-year and it is assumed that they represent genuine associations. Policy makers and insurers will be quick to point to these results claiming that prescription drug coverage does not "save" money on hospitalizations and may in fact increase other service use.

However, a great deal of caution is necessary in the interpretation of the results, especially in regard to their implications to public policy. The term "association" must not be construed to imply a direct cause and effect relationship. This is especially true in an observational study such as this unless clear causal mechanisms can be demonstrated. In the present study, it is reasonable to attribute the increases in prescription events/expenditure to the insurance effect directly related to the generosity of prescription coverage. It is not reasonable to attribute the observed increases in inpatient hospital events/expenditure, for example, 25 percent or more, to only the presence of prescription coverage generosity. More reasonable explanations for the observed effects are:

- both conditions (generosity of prescription coverage and increased expenditure/service use) being coincidentally associated with overall medical insurance generosity

- self-selection biases relating to patients making insurance selections based on their own extensive knowledge of pre-existing health conditions (that knowledge being far more extensive than the reporting of conditions in the MCBS

Also, the effect size was limited to one year. While some insurers may not see this as reason for caution, policy makers deciding on Medicare benefits are aware that this time limit is not reasonable with respect to health care needs of elders. As time goes on, elders may have more chronic disease and need more pharmaceuticals, not less. It is possible that a decrease may be evident in specific sub-populations of elders, *e.g.*, those suffering from certain chronic diseases, over a longer period of time. Also, policy makers and insurers must be made aware that the increases seen in the supplementally-insured groups' service use and expenditure may, in fact, be smaller than they would have been if they had NOT had the supplemental insurance. A longitudinal study focusing on this study's specific aims is necessary before implications of results on policy can be justified.

CHAPTER SEVEN

LIMITATIONS

7.1 Limitations

Some limitations associated with this dissertation were due to the data set:

1) The Cost and Use files of the MCBS can only be used for cross-sectional studies; this limited the effect observed to one year. As noted in Chapter Two, elders suffer with chronic diseases and use prescription medications such as cholesterol-lowering agents, anti-inflammatory agents, steroids, hormone replacement therapies, and antidepressants. The benefit of these and similar drugs, which are prescribed to prevent large future medical expenditures, are often not seen for many years (Swartz, 1998). In the future, HCFA (and WESTAT) may determine a way for researchers to use the MCBS' Cost and Use Files longitudinally.

2) Due to capitated expenditure data of the two HMO insurance groups (MEDICARE HMO and PRIVATE + HMO), expenditure analyses were not possible and thus, detailed comparisons between event and expenditure was also not possible.

3) The number of elders enrolled in MEDICARE HMOs was small which made it difficult to find statistical significance.

4) While the MCBS was rich in information in regard to the control, event and expenditure variables, the only information about prescription coverage was whether the subject had it or not. Information about copays or deductibles is important since these disincentives are techniques to contain expenditures (Johnson et al., 1997). Without direct information, generosity of the prescription coverage had to be constructed from indirect information.

5) The MCBS provided no detail regarding the "restrictiveness" or "openness" of a prescription drug formulary. Therefore there was no variable in the model equations to explain this complementary aspect of generosity.

6) Cross-sectional data does not permit a comment on whether or not the added utilization encouraged by supplemental insurance contributed to improved health status.

7) Sample sizes for some subgroups were too small (MEDICARE HMO and PRIVATE + HMO) to afford even modest statistical power to find an effect size of 20 percent (the aim of the pre-study power analysis).

Several limitations in this dissertation can be corrected in subsequent analyses:

1) There was no differentiation in the PRIVATE insurance group between group policy purchasers (*e.g.*, employer-purchase, union purchase) and individual policy purchasers (*e.g.* medigap). The self-selection bias that is inherent between the group and individual purchasers may be limiting the information from the analyses because both groups were lumped into the group PRIVATE. (While a number of covariates were incorporated into the model to account for self-selection bias, there may still be health status information only known to the elders that influenced their choice of coverage.) In a future analysis, to gain more valuable information and reduce the variance within the PRIVATE insurance group, the insurance variable should increase to five groups: MEDICARE-only, MEDICARE HMO, PRIVATE-employer, PRIVATE-individual, and PRIVATE + HMO.

2) The generosity variable constructed for this dissertation lacked specificity. For instance, if an elder had a $50 deductible and then received subsequent prescriptions for $2.00 each (a VERY generous coverage) but spent only $49 in the year for prescriptions, the generosity variable would identify him as genNONE when the coverage was actually very generous. A future analysis could include the original four insurance groups (MEDICARE-only, MEDICARE HMO, PRIVATE, and PRIVATE + HMO) with the generosity variable re-defined to additionally include whether the prescription coverage came from an employer or an individual purchase. (The assumption being employer-sponsored prescription coverage is more generous than individually-purchased coverage.)

3) Previous use of a service, especially inpatient hospital use, increases the likelihood that a person will re-use the service. The models in this dissertation did not include this type of variable so its effect was not controlled. A future analysis could include a variable in regard to previous-year service use.

CHAPTER EIGHT

SPECIFIC AIMS REVISITED AND FURTHER RESEARCH

8.1 Specific aims revisited

Specific Aim A_1. Determine if elderly possessing Medicare + supplemental insurance + prescription drug coverage have lower specific health care use when compared to elderly possessing Medicare + supplemental insurance without prescription drug coverage.

Increased prescription events were consistently statistically associated with prescription drug coverage. No other significant results were found. The Rx Coverage variable was not specific enough to observe a difference in events between insurance groups.

Specific Aim A_2. Determine if, and to what extent, generosity of prescription drug coverage significantly influences the estimates developed in Specific Aim A_1.

Within the PRIVATE insurance group, "poor" and "fair" generosity levels of prescription drug coverage were statistically significantly associated with increased inpatient hospital events per person per year. All levels of generosity were statistically significantly associated with increased medical provider and prescription events per person per year with the smallest increases occurring in the "good" generosity level.

Within the MEDICARE HMO insurance group, no definitive patterns were seen in any of the service use categories except prescription events. In this event, all levels of generosity increased prescription events per

person per year with the smallest increases occurring in the "good" generosity level.

Specific Aim B_1. Determine if elderly possessing Medicare + supplemental insurance + prescription drug coverage have lower *specific* health care expenditures and/or health care service use when compared to elderly possessing either Medicare + supplemental insurance without prescription drug coverage.

Within the PRIVATE insurance group, increased prescription expenditure was consistently statistically associated with prescription drug coverage. No other significant results were found. The Rx Coverage variable was not specific enough to observe a difference in service expenditures between insurance groups. No statistically significant results were found to answer this aim.

Specific Aim B_2. Determine if, and to what extent, generosity of prescription drug coverage significantly influences the estimates developed in Specific Aim B_1.

Within the PRIVATE insurance group, "poor" and "fair" generosity levels of prescription drug coverage were statistically significantly associated with increased inpatient hospital expenditures per person per year. All levels of generosity were statistically significantly associated with increased outpatient hospital, medical provider, and prescription expenditures per person per year compared to "no" generosity levels. In particular, the more generous the prescription coverage, the greater the increase in outpatient hospital and prescription expenditures. Compared to

other prescription generosity levels, the "good" generosity level showed the smallest increase in medical provider expenditure.

Specific Aim C_1. Determine if elderly possessing Medicare + supplemental insurance + prescription drug coverage had lower *total* health care expenditures when compared to elderly possessing Medicare + supplemental insurance without prescription drug coverage.

Within the PRIVATE insurance group, total expenditure was not statistically associated with prescription drug coverage status.

Specific Aim C_2. Determine if, and to what extent, generosity of prescription drug coverage significantly influenced the estimates developed in Specific Aim C_1.

Within the PRIVATE insurance group, all generosity levels of prescription drug coverage were often statistically significantly associated with increased total health care expenditures per person per year. The more generous the prescription drug coverage, the greater the total health care expenditures per person per year.

8.2 Further research

This study was the first to examine the MCBS for information about the effect of prescription coverage and its generosity on total and specific health care expenditure and service use of Medicare beneficiaries, 65 years of age and older. As such, it was purposefully conservative in sample selection and variable definition.

The results suggest that supplemental outpatient prescription coverage is associated with increases in other health care service use/expenditure within the same year. In light of the discussion and limitations presented in Chapters Six and Seven, respectively, further investigation of this study's specific aims is necessary.

Future studies must examine the effect of prescription drug coverage on health service use and expenditure from a longitudinal perspective. Expecting to see an effect in one year is not realistic in regard to the elderly and their chronic disease profile. Additionally, investigations should focus on special sub-groups of elders who, without good drug therapy, are at-risk for inpatient hospitalizations, *e.g.*, coronary disease, asthma.

Future studies must also incorporate a more-refined supplemental insurance variable. Group purchasers of supplemental insurance should be distinguished from individual purchasers. In this same context, modeling should incorporate a more-discriminating medical insurance variable. Just as there are various levels of generosity in regard to prescription insurance,

there are also levels of generosity with medical insurance. Since prescription drug coverage is so related to medical insurance, the influence that generosity of medical insurance has on expenditure should be controlled for in future modeling.

Lastly, pursuing this same research question using a different national data set is important, *e.g.*, data from a national medigap insurer. Their data would have more specific information about the prescription coverage generosity compared to this study. Related to this pursuit is testing this study's model estimates as one-year prediction estimates of health care use and expenditure of elders with a data set having comparable control variable information (as in the MCBS) and better predictor variable information (Rx Generosity).

Appendix A

Recoded Variable Name	Definition/ Type	Recoded Levels	Generated from MCBS Variables	Definition/ Type	MCBS Levels
H_RACE2, H_RACE3, H_RACE4, H_RACE5	race of subject/numeric	0 = unknown 1 = white 2 = black 3 = other 4 = asian 5 = hispanic 6 = native amer. "." = unknown	H_RACE	race of subject/char.	' ' = unknown 0 = unknown 1 = white 2 = black 3 = other 4 = asian 5 = hispanic 6 = native amer.
D_STRAT2, D_STRAT3, D_STRAT4, D_STRAT5	age strata/numeric	1 = 0-64 2 = 65-69 3 = 70-74 4 = 75-79 5 = 80-84 6 = 85+ "." = unknown	D_STRAT	age strata /char.	' ' = unknown 1 = 0-44 2 = 45-64 3 = 65-69 4 = 70-74 5 = 75-79 6 = 80-84 7 = 85 +
H_CENSU2, H_CENSU3, H_CENSU4, H_CENSU5	census region as of December of study year/*numeric	01 = New England 02 = Middle Atlantic 03 = East N. Central 04 = West N. Central 05 = South Atlantic 06 = East S. Central 07 = West S. Central 08 = Mountain 09 = Pacific 10 = Puerto Rico "." = unknown	H_CENSUS	census region as of December of study year/*char.	' = unknown ** = unknown 01 = New England 02 = Middle Atlantic 03 = East N. Central 04 = West N. Central 05 = South Atlantic 06 = East S. Central 07 = West S. Central 08 = Mountain 09 = Pacific 10 = Puerto Rico
H_SEX2, H_SEX3, H_SEX4, H_SEX5	sex/numeric	1 = male 2 = female "." = unknown	H_SEX	sex/char	' ' = unknown 1 = male 2 = female

Recoded Variable Name	Definition/ Type	Recoded Levels	Generated from MCBS Variables	Definition/ Type	MCBS Levels
H_METRO2, H_METRO3, H_METRO4, H_METRO5	metro status/numeric	1 = metro area 2 = non-metro area "." = unknown	H_METRO	metro status/char.	U = unknown Y = metro area N = non-metro area
SPMARST2, SPMARST3, SPMARST4, SPMARST5	marital status/numeric	1 = married 2 = widowed 3 = divorced,/separ. 4 = never married "." = unknown	SPMARSTA	marital status/numeric	. = inapplicable (-)7 = refused (-)8 = don't know (-9) = not ascertained 1 = married 2 = widowed 3 = divorced 4 = separated 5 = never married
GENHELT2, GENHELT3, GENHELT4, GENHELT5	self-assessed general health/ numeric	1 = excellent 2 = very good 3 = good 4 = fair 5 = poor "." = unknown	GENHELTH	self-assessed general health/ numeric	. = inapplicable (-)7 = refused (-)8 = don't know (-9) = not ascertained 1 = excellent 2 = very good 3 = good 4 = fair 5 = poor
INCOME2, INCOME3, INCOME4, INCOME5	income strat/numeric	1 = $5,000 or less 2 = $5,001- $10,000 3 = $10,001 - $15,000 4 = $15,001 - $20,000 5 = $20,001 - $25,000 6 = $25,001 or more "." = unknown	INCOME	Income strata/numeric	. = not reported (-)7 = not reported (-)8 = not reported (-) 25 = under $25,000 1 = $5,000 or less 2 = $5,001- $10,000 3 = $10,001 - $15,000 4 = $15,001 - $20,000 5 = $20,001 - $25,000 6 = $25,001 - $30,000 7 = $30,001 - $35,000 8 = $35,001 - $40,000 9 = $40,001 - $45,000 10 = $45,001 - $50,000 11 = $50,001 or more 25 = $25,000 or more

Recoded Variable Name	Definition/ Type	Recoded Levels	Generated from MCBS Variables	Definition/ Type
MISC92, MISC93, MISC94, MISC95	misc.provider $ (hospice, facility, 'institution)/ numeric		PAMTHP PAMTFA PAMTIU	adjst. sum for hospice adjst. sum for facility adjst. sum for institution
MISC92A, MISC93A, MISC94A, MISC95A (MISC92, MISC93, MISC94, MISC95 recoded)	yes/no misc.provider $/numeric	0 = no 1= yes		
IPEXP92, IPEXP93, IPEXP94, IPEXP95	yes/no inpat.hosp $/numeric	0 = no 1 = yes	PAMTIP	adjst. sum for inpat. hosp. $
OPEXP92, OPEXP93, OPEXP94, OPEXP95	yes/no outpt. hosp $/numeric	0 = no 1 = yes	PAMTOP	adjst. sum for outpt. hosp. $
MPEXP92, MPEXP93, MPEXP94, MPEXP95	yes/no med.provider $/numeric	0 = no 1 = yes	PAMTMP	adjst. sum for med. provider $
TOTEXP92, TOTEXP93, TOTEXP94, T0TEXP95	total expenditures (excluding home health, dental/ numeric		PAMTTOT PAMTHH PAMTDU	adjst. sum for total health $ adjst. sum for home health $ adjst. sum for dental $
IPAEV92, IPAEV93, IPAEV94, IPAEV95	# of inpt. hosp. events + 0.5/numeric		IPAEVNTS	adjst. # of inpat. hosp. events

Appendix A.2 Detailed Dependent Variable List: Origin, Type, Levels

Recoded Variable Name	Definition/ Type	Recoded Levels	Generated from MCBS Variables	Definition/ Type
OPAEV92, OPAEV93, OPAEV94, OPAEV95	# of outpt hosp events + 0.5/numeric		OPAEVNTS	adjst. # of outpt. hosp. events
MPAEV92, MPAEV93, MPAEV94, MPAEV95	# of med. prov. events + 0.5/numeric		MPAEVNTS	adjst. # of med. provider events
PMAEV92, PMAEV93, PMAEV94, PMAEV95	# of rx events + 0.5/numeric		PMAEVNTS	adjst. # of rx events
MISCEV92, MISCEV93, MISCEV94, MISCEV95	# of misc.prov. events + 0.5/numeric		HPAEVNTS	adjst. # of hospice events
			IUAEVNTS	adjst. # of institution events
			FAAEVNTS	adjst. # of facility events
LGPAMIP2, LGPAMIP3, LGPAMIP4, LGPAMIP5	log 10 of adjusted sum for inpatient hosp. $ (when $ > 0) / numeric		PAMTIP	adjst. sum for inpat. hosp. $
LGPAMOP2, LGPAMOP3, LGPAMOP4, LGPAMOP5	log 10 of adjusted sum for outpt hosp. $ (when $ > 0) / numeric		PAMTOP	adjst. sum for outpt. hosp. $
LGPAMMP2 LGPAMMP3 LGPAMMP4 LGPAMMP5	log 10 of adjusted sum for med. provider $ (when $ > 0) / numeric		PAMTMP	adjst. sum for med. provider $

Appendix A.2 Detailed Dependent Variable List: Origin, Type, Levels

Recoded Variable Name	Definition/ Type	Recoded Levels	Generated from MCBS Variables	Definition/ Type
LGPAMPM2L GPAMPM3LG PAMPM4LGP AMPM5	log 10 of adjusted sum for rx $ / numeric		PAMTPM	adjst. sum for rx $
LGMISC92, LGMISC93, LGMISC94,	log 10 of adjusted sum for misc. provider $ (when		PAMTHP	adjst. sum for hospice
			PAMTFA	adjst. sum for
			PAMTIU	adjst. sum for
LGIP_1 (for each study year)	log 10 of adjusted sum for inpt hosp. $ + 1 / numeric		PAMTIP	adjst. sum for inpat. hosp. $
LGOP_1 (for each study year)	log 10 of adjusted sum for outpt. hosp. $ + 1 / numeric		PAMTOP	adjst. sum for outpt. hosp. $
LGMP_1 (for each study year)	log 10 of adjusted sum for med. provider $ + 1 / numeric		PAMTMP	adjst. sum for med. provider $
LGMIS_1 (for each study year)	log 10 of adjusted sum for misc. provider $ + 1 / numeric		PAMTHP	adjst. sum for hospice
			PAMTFA	adjst. sum for facility
			PAMTIU	adjst. sum for institution
LGPM_1 (for each study year)	log 10 of adjusted sum for rx $ + 1 / numeric		PAMTPM	adjst. sum for rx $
LGTOT_1 (for each study year)	log 10 of adjusted sum for total health $ + 1 / numeric		PAMTTOT	adjst. sum for total health care $

Appendix A.3 Control and Predictor Variables Built from MCBS variables: Origin, Type, Levels

Artz Variable	Definition/ Type	Recoded Levels	Generated from MCBS variables	Definition/Type	MCBS Levels	Note
CHRDIS92,	number chronic diseases/	0 = no chronic disease	OCARTERY OCHP	hardening of arteries/numeric hypertension/numeric	. = inapplicable	each variable recoded
CHRDIS93, CHRDIS94, CHRDIS95	numeric	1 = 1 chronic disease 2 = 2 chronic diseases 3 = 3 chronic diseases 4 = 4 chronic diseases 5 = 5 chronic diseases 6 = 6 or more chronic diseases "." = unknown	OCMYOCAR OCCHD OCOTHART OCSTROKE OCDIABTS OCARTHRH OCARTHRH OCALZHMR OCPSYCH OCOSTEOP OCPARKIN OCEMPHYS OCCSKIN OCCANCER	myocardial infarction/numeric anglna/cong.ht dis./numeric other heart condition/numeric stroke/brain hemorr./numeric diabetes/numeric rheum. arthritis/numeric arthritis/numeric alzheimers/numeric mental disorder/numeric osteoporosis/numeric parkinsons/numeric emphysema/numeric skin cancer/numeric cancer/tumor/numeric	(-)7 = refused (-)8 = don't know (-9) = not ascertained 1 = yes 2 = no	0 = no 1 = yes "." = unknown
ADL2, ADL3, ADL4, ADL5	number of ADLs/ numeric	0 = no ADLs 1 = 1 ADL 2 = 2 ADLs 3 = 3 ADLs 4 = 4 ADLs 5 = 5 ADLs 6 = 6 ADLs "." = unknown	HPPDTOIL HPPDWALK HPPDCHAR HPPDEAT HPPDDRES HPPDBATH	difficulty using toilet/numeric difficulty walking/numeric difficulty in/out chair/numeric difficulty eating/numeric difficulty dressing/numeric difficulty bathing/numeric	. = inapplicable (-)7 = refused (-)8 = don't know (-9) = not ascertained 1 = yes 2 = no 3 = bedridden	each variable recoded 0 = no 1 = yes (includes bedridden) "." = unknown

Appendix A.3 Control and Predictor Variables Built from MCBS variables: Origin, Type, Levels

Artz Variable	Definition/ Type	Recoded Levels	Generated from MCBS variables	Definition/Type	MCBS Levels	Note
IADL2, IADL3, IADL4, IADL5	number of IADLs/ numeric	0 = no IADLS 1 = 1 IADL 2 = 2 IADLs 3 = 3 IADLs 4 = 4 IADLs 5 = 5 IADLs 6 = 6 AIDLs "." = unknown	PRBTELE PRBLHWK PRBMEAL PRBSHOP PRBBILS DIFWRITE	difficulty using phone/numeric difficulty w/light housework/numeric difficulty making meals/numenc difficulty shopping/numeric difficulty managing money/numeric difficulty writing/numeric	. = inapplicable (-)7 = refused (-)8 = don't know (-9) = not ascertained 1 = yes 2 = no 3 = doesn't do	each variable recoded 0 = no (includes doesn't do) 1 = yes "." = unknown
INS92, INS93, INS94, INS95** **variable-building logic located in appendix	insurance type/numeric	0 = No Private + no HMO 1 = No Private + HMO 2 = Private + no HMO 3 = Private + HMO 4 + Medicaid + anything "." = unknown	D_CAID D_PHI D_HMO	annual medicaid coverage/char. annual private health Ins./char annual HMO coverage/char	0 = no coverage 1 = survey information 2 = HCFA records 3 = survey/HCFA records	

Appendix A.3 Control and Predictor Variables Built from MCBS variables: Origin, Type, Levels

Artz Variable	Definition/ Type	Recoded Levels	Generated from MCBS variables	Definition/Type	MCBS Levels	Note
RXGEN92E, RXGEN93E, RXGEN94E, RXGEN95E	generosity of rx benefit/ numeric	0 = no rx generosity	AAMTOOP (rx $)	adjst. sum of rx out-of-pocket $/numeric		
**variable-building logic located 'in appendix		1 = poor rx generosity 2 = fair rx generosity 3 = good rx generosity	PAMTPM	adjst. sum for rx $/numeric		
			AAMTCARE	adjst. sum of medicare rx$ /numeric		

Appendix B

Appendix B.1 Example of SAS programming for insurance designation.

```
Value ins92
                    4 = 'Medicaid + anything'
                    3 = 'Private + HMO'
                    2 = 'Private + no HMO'
                    1 = 'No Private + HMO'
                    0 = 'No Private + no HMO'
                    . = 'missing';

data master.mst92psm;
     SET master.mst92psm;
     IF d_caid ne "0" THEN ins92 = 4;

     ELSE IF (d_phi = "1" OR d_phi = "2" OR d_phi = "3") AND
(d_hmo = "1" OR d_hmo = "2" OR d_hmo = "3") THEN ins92 = 3;

     ELSE IF (d_phi = "1" OR d_phi = "2" OR d_phi = "3") THEN
ins92 = 2;

     ELSE IF (d_hmo = "1" OR d_hmo = "2" OR d_hmo = "3") THEN
ins92 = 1;

     ELSE IF (d_phi = "0" AND d_hmo = "0") THEN ins92 = 0;

     ELSE ins92 = . ;
run;
```

Appendix B.2

Example of the SAS programming code used to build the generosity variable.

```
data master.de92rx;
    set master.de92;
    IF  (pamtpm - aamtcare) le 0.0 THEN
        rxgen92 = . ;
    ELSE rxgen92 = aamtoop / (pamtpm - aamtcare);
LABEL rxgen92 = 'yr92 rx generosity ratio'; run;

data master.de92rx;
    set master.de92rx;
    IF rxgen92 ge 1 THEN rxgen92b = 0;
    ELSE IF rxgen92 lt 1   AND rxgen92 ge .90 THEN rxgen92b = 1;
    ELSE IF rxgen92 lt .90 AND rxgen92 ge .80 THEN rxgen92b = 2;
    ELSE IF rxgen92 lt .80 AND rxgen92 ge .70 THEN rxgen92b = 3;
    ELSE IF rxgen92 lt .70 AND rxgen92 ge .60 THEN rxgen92b = 4;
    ELSE IF rxgen92 lt .60 AND rxgen92 ge .50 THEN rxgen92b = 5;
    ELSE IF rxgen92 lt .50 AND rxgen92 ge .40 THEN rxgen92b = 6;
    ELSE IF rxgen92 lt .40 AND rxgen92 ge .30 THEN rxgen92b = 7;
    ELSE IF rxgen92 lt .30 AND rxgen92 ge .20 THEN rxgen92b = 8;
    ELSE IF rxgen92 lt .20 AND rxgen92 ge .10 THEN rxgen92b = 9;
    ELSE IF rxgen92 lt .10 THEN rxgen92b = 10;
    ELSE rxgen92b = .;
LABEL rxgen92b = 'yr92 rxgen (0 thru 10 scale)';run;

    Value rxgenfmt
                    3 = 'good rx generosity'
                    2 = 'fair rx generosity'
                    1 = 'poor rx generosity'
                    0 = 'no rx generosity'
                    . = 'missing'

data master.de92rx;
    set master.de92rx;

    IF rxgen92 ge .99 then rxgen92e = 0;

    ELSE IF (rxgen92 lt .99 AND rxgen92 gt .8) THEN rxgen92e = 1;  /* subjects who are
paying < 100% but >  80% o-o-p for rx */

    ELSE IF (rxgen92 le .8 AND rxgen92 gt .2) THEN rxgen92e = 2; /*subjects who are
paying < 80% oop but > 20% o-o-p for rx*/

    ELSE IF rxgen92 le .2 THEN rxgen92e = 3; /*subjects who are paying 20% or less o-
o-p for rx  */

    ELSE rxgen92e = .;  /*  I should have no missing by now*/

LABEL rxgen92e = 'yr92 rxgen,no,poor,fair,gd'; format rxgen92e; run;
```

Appendix B.3

Example of SAS programming code for excluding subjects.

```
data master.de92rx_g;
     set master.de92rx;
     where pamtpm ne 0; run;

data master.de92rx_g;
     SET master.de92rx_g;
     IF d_care ne '3' AND d_caid = '0' then delete; run;

DATA master.de92rx_g;
     set master.de92rx_g;
     IF baseid = '00063964' or baseid = '00076873' or baseid = '00133541'
      then delete; run;

DATA master.de92rx_g;
     set master.de92rx_g;
     IF h_dod ge '920101' THEN delete; run;

DATA master.de92rx_g;
     set master.de92rx_g;
     IF ins92 = 4 THEN delete; run;

data master.de92rx_g;
     set master.de92rx_g;
     IF h_age lt 65 then delete; run;

data master.de92rx_g;
set master.de92rx_g;

     IF (d_hmo1 ne '0' OR d_hmo2 ne '0' OR d_hmo3 ne '0' OR d_hmo4 ne '0' OR
d_hmo5 ne '0' OR d_hmo6 ne '0'
OR d_hmo7 ne '0' OR d_hmo8 ne '0' OR d_hmo9 ne '0' OR d_hmo10 ne '0' OR d_hmo11
ne '0' OR d_hmo12 ne '0') AND ins92 = 0
THEN delete;

     IF (d_phi1 ne '0' OR d_phi2 ne '0' OR d_phi3 ne '0' OR d_phi4 ne '0' OR d_phi5 ne
'0' OR d_phi6 ne '0'
OR d_phi7 ne '0' OR d_phi8 ne '0' OR d_phi9 ne '0' OR d_phi10 ne '0' OR d_phi11 ne '0'
OR d_phi12 ne '0') AND ins92 = 0
THEN delete;

     IF (d_caid1 ne '0' OR d_caid2 ne '0' OR d_caid3 ne '0' OR d_caid4 ne '0' OR d_caid5
ne '0' OR d_caid6 ne '0'
OR d_caid7 ne '0' OR d_caid8 ne '0' OR d_caid9 ne '0' OR d_caid10 ne '0' OR d_caid11
ne '0' OR d_caid12 ne '0') AND ins92 = 0
THEN delete;

     IF pamtva > 0 THEN delete; run;
```

Appendix B.4

Elimination Process for Rx Generosity Analyses	1992	1993	1994	1995
initial sample size	13,039	12,330	12,777	12,096
drop non-rx users	10,259	9,757	10,079	9,644
drop non-annual Medicare entitlement	9,972	9,515	9,824	9,377
drop ESRD	9,969	9,504	9,808	9,347
drop deceased	9,579	9,090	9,411	8,985
drop Medicaid	7,866	7,427	7,626	7,236
drop age <65	6,922	6,653	7,811	6,489
partial ins.cov/VA	6,744	6,485	6,613	6,293
eliminated from analyses due to "missing values"	6,720	6,426	6,535	6,237

Elimination Process for Rx Coverage Analyses	1992	1993	1994	1995
initial sample size	13,039	12,330	12,777	12,096
drop non-annual Medicare entitlement	12,645	12,016	12,449	11,768
drop ESRD	12,642	12,005	12,429	11,731
drop deceased	11,986	11,302	11,712	11,067
drop Medicaid	9,406	8,823	9,053	8,466
drop age <65	8,262	7,872	8,061	7,574
partial ins.cov/VA	8,068	7,685	7,852	7,370
eliminated from analyses due to "missing values"	7,659	7,539	7,685	7,206

Appendix C

Appendix C

Table C.1 Income Distribution of Medicare Beneficiaries, 65 years and older, in percents

1992	n	< / = 5000	5-10,000	10-15,000	15-20,000	20-25,000	>25,000
Population*	33.1 M	7.2	26.7	19.4	12.9	10.2	23.7
Orig.sample	10631	8.4	30.1	19.4	12.9	9.4	19.8
Rx coverage sample	7659	5.7	23.5	21.8	15.0	11.0	23.0
Rx generosity sample	6720	5.5	23.2	21.8	14.8	11.2	23.5
Subjects removed from Rx coverage	5380	15.4	46.9	14.0	7.7	5.1	10.9
Subjects removed from Generosity sample	6319	14.1	43.9	15.1	9.0	5.8	12.1

1993	n	< / = 5000	5-10,000	10-15,000	15-20,000	20-25,000	>25,000
Population*	33.6 M	5.2	26.4	18.7	14.1	11.0	24.6
Orig.sample	10211	6.4	30.1	19.7	13.6	9.8	20.4
Rx coverage sample	7539	4.2	21.9	21.8	16.1	11.7	24.4
Rx generosity sample	6426	4.0	21.3	21.8	16.3	11.8	24.8
Subjects removed from Rx coverage	4791	11.7	52.1	14.2	6.9	5.0	10.1
Subjects removed from Generosity sample	5904	10.5	47.1	15.5	8.5	6.1	12.3

1994	n	< / = 5000	5-10,000	10-15,000	15-20,000	20-25,000	>25,000
Population*	34.0 M	4.9	25.7	18.4	12.6	11.2	27.3
Orig.sample	10579	5.6	30.2	19.2	13.2	9.7	22.1
Rx coverage sample	7685	4.3	20.6	21.2	15.5	11.5	26.9
Rx generosity sample	6535	4.2	20	21.1	15.6	11.8	27.3
Subjects removed from Rx coverage	5092	8.9	53.7	15.0	6.7	4.6	11.1
Subjects removed from Generosity sample	6242	8.2	48.2	16.1	8.3	5.6	13.6

Appendix C

1995	n	< / = 5000	5-10,000	10-15,000	15-20,000	20-25,000	>25,000
Population*	34.3 M	4.1	24.1	17.4	12.8	12.0	29.6
Orig.sample	9999	5.1	28.2	18.9	13.4	10.8	23.6
Rx coverage sample	7206	3.6	18.0	20.7	16.0	13.0	28.7
Rx generosity sample	6237	3.5	17.8	20.6	15.9	13.2	29
Subjects removed from Rx coverage	4890	9.3	52.9	14.2	7.3	5.2	11.1
Subjects removed from Generosity sample	5859	8.4	47.4	15.4	8.8	6.3	13.7

Table C.2 Gender Distribution of Medicare Beneficiaries, 65 years and older, in percents

1992	n	Male	Female
Population*	33.1 M	40.9	59.1
Orig.sample	10631	40.0	60.0
Rx coverage sample	7659	40.7	59.3
Rx generosity sample	6720	39.1	60.9
Subjects removed from Rx coverage sample	5380	48.8	51.2
Subjects removed from Generosity sample	6319	49.2	50.8

1993	n	Male	Female
Population*	33.6 M	40.7	59.3
Orig.sample	10211	39.7	60.3
Rx coverage sample	7539	40.9	59.1
Rx generosity sample	6426	39.5	60.5
Subjects removed from Rx coverage sample	4791	47.7	52.3
Subjects removed from Generosity sample	5904	47.9	52.1

1994	n	Male	Female
Population*	34.0 M	41.0	59.0
Orig.sample	10579	40.3	59.7
Rx coverage sample	7685	41.2	58.8
Rx generosity sample	6535	39.9	60.1
Subjects removed from Rx coverage sample	5092	48.3	51.7
Subjects removed from Generosity sample	6242	48.4	51.6

1995	n	Male	Female
Population*	34.3 M	41.3	58.7
Orig.sample	9999	40.5	59.5
Rx coverage sample	7206	41.7	58.3
Rx generosity sample	6237	40.7	59.3
Subjects removed from Rx coverage sample	4890	47.6	52.4
Subjects removed from Generosity sample	5859	47.8	52.2

Table C.3 Age Distribution of Medicare Beneficiaries, 65 years and older, in percents

1992	n	65-74	75-84	85+
Population*	33.1 M	57.2	32.0	10.7
Orig.sample	10631	46.4	35.1	18.5
Rx coverage sample	7659	50.2	35.6	14.2
Rx generosity sample	6720	48.9	37.1	14.0
Subjects removed from Rx coverage sample	5380	36.6	33.6	29.8
Subjects removed from Generosity sample	6319	42.1	31.7	26.2

1993	n	65-69	75-84	85+
Population*	33.6 M	57.2	31.8	11.0
Orig.sample	10211	42.3	38.3	19.4
Rx coverage sample	7539	46.5	38.6	14.9
Rx generosity sample	6426	23.9	41.5	34.6
Subjects removed from Rx coverage sample	4791	30.5	37.4	32.1
Subjects removed from Generosity sample	5904	36.7	35.8	27.5

1994	n	65-74	75-84	85+
Population*	34.0 M	56.6	32.1	11.3
Orig.sample	10579	41.1	38.6	20.3
Rx coverage sample	7685	45.0	39.6	15.4
Rx generosity sample	6535	44.5	40.4	15.1
Subjects removed from Rx coverage sample	5092	30.6	36.0	33.4
Subjects removed from Generosity sample	6242	35.5	35.8	28.7

1995	n	65-74	75-84	85+
Population*	34.3 M	55.2	32.9	11.9
Orig.sample	9999	41.0	37.5	21.5
Rx coverage sample	7206	44.8	38.9	16.3
Rx generosity sample	6237	48.9	37.1	14.0
Subjects removed from Rx coverage sample	4890	31.3	33.8	34.9
Subjects removed from Generosity sample	5859	36.1	33.5	30.4

Table C.4 Marital Status Distribution of Medicare Beneficiaries, 65 years and older, in percents

1992	n	Married	Widowed	Divorced/Sep.	Never Married
Population*	33.1 M	54.5	34.0	7.0	4.5
Orig.sample	10613	51.0	37.7	6.7	4.6
Rx coverage sample	7659	58.0	33.5	5.2	3.3
Rx generosity sample	6720	57.3	34.4	5.0	3.3
Subjects removed from Rx coverage sample	5355	34.5	29.5	14.5	21.5
Subjects removed from Generosity sample	6294	38.7	29.1	13.4	18.8

1993	n	Married	Widowed	Divorced/Sep.	Never Married
Population*	33.6 M	55.7	32.5	7.4	4.5
Orig.sample	10196	50.6	37.8	6.9	4.7
Rx coverage sample	7539	57.3	33.7	5.6	3.4
Rx generosity sample	6426	57.8	33.7	5.3	3.2
Subjects removed from Rx coverage sample	4769	32.9	29.9	14.4	22.8
Subjects removed from Generosity sample	5882	37.0	30.7	13.1	19.2

1994	n	Married	Widowed	Divorced/Sep.	Never Married
Population*	34.0 M	56.6	31.5	7.6	4.4
Orig.sample	10566	51.3	37.0	7.2	4.5
Rx coverage sample	7685	58.1	33.0	5.6	3.3
Rx generosity sample	6535	58.8	32.8	5.3	3.1
Subjects removed from Rx coverage sample	5074	34.2	29.3	15.1	21.4
Subjects removed from Generosity sample	6224	37.8	30.3	13.6	18.3

1995	n	Married	Widowed	Divorced/Sep.	Never Married
Population*	34.3 M	53.4	35.4	7.0	4.2
Orig.sample	9988	47.8	41.4	6.4	4.4
Rx coverage sample	7206	54.4	37.3	5.0	3.3
Rx generosity sample	6237	54.7	37.4	4.8	3.1
Subjects removed from Rx coverage sample	4877	31.6	32.4	14.9	21.1
Subjects removed from Generosity sample	5846	35.1	33.1	13.5	18.3

Table C.5 Race Distribution of Medicare Beneficiaries, 65 years and older, in percents

1992	n	White	Black	Other
Population*	33.1 M	85.5	8.0	6.5
Orig.sample	10631	87.5	9.1	3.4
Rx coverage sample	7659	91.3	6.6	2.1
Rx generosity sample	6720	91.6	6.3	2.1
Subjects removed from Rx coverage sample	5380	75.7	18.1	6.2
Subjects removed from Generosity sample	6319	77.6	16.7	5.7

1993	n	White	Black	Other
Population*	33.6 M	85.3	8.0	6.7
Orig.sample	10211	87.3	9.3	3.4
Rx coverage sample	7539	91.4	6.5	2.1
Rx generosity sample	6426	91.7	6.2	2.1
Subjects removed from Rx coverage sample	4791	74.3	19.0	6.9
Subjects removed from Generosity sample	5904	77.2	17.0	5.8

1994	n	White	Black	Other
Population*	34.0 M	85.2	8.0	6.9
Orig.sample	10579	86.9	9.4	3.7
Rx coverage sample	7685	91.2	6.5	2.3
Rx generosity sample	6535	91.6	6.1	2.3
Subjects removed from Rx coverage sample	5092	73.9	19.0	7.1
Subjects removed from Generosity sample	6242	76.7	17.1	6.2

1995	n	White	Black	Other
Population*	34.3 M	85.0	7.9	7.2
Orig.sample	9999	87.1	8.9	4.0
Rx coverage sample	7206	91.0	6.4	2.6
Rx generosity sample	6237	91.2	6.3	2.5
Subjects removed from Rx coverage sample	4890	74.7	17.9	7.4
Subjects removed from Generosity sample	5859	77.2	16.1	6.7

Table C.6 Census Region Distribution of Medicare Beneficiaries, 65 years and older, in percents

* Estimates by US Census Bureau, as of July 1, 1998

1992	n	N.Eng.	Mid Atl.	E. N. Cen.	W. N. Cen.	S. Atl.	E. S. Cen.	W. S. Cen.	Mtn.	Pacific	P.R.,V.I. etc.
Population*	33.1 M	12.0	12.0	12.0	13.0	13.0	8.0	10.0	10.0	10.0	X
Orig.sample	10616	3.2	17.8	16.7	6.5	20.2	5.4	10.4	5.8	12.7	1.3
Rx coverage sample	7659	3.2	18.4	17.6	6.9	19.3	5.2	10.2	6.1	12.3	0.8
Rx generosity sample	6720	3.2	18.6	17.3	6.9	19.5	5.3	9.9	6.1	12.4	0.8
Subjects removed from Rx coverage sample	5355	3.1	16.5	15.3	5.8	22.4	6.8	10.1	5.0	12.5	2.5
Subjects removed from Generosity sample	6294	3.1	16.6	15.9	6.0	21.7	6.5	10.4	5.2	12.4	2.2

1993	n	N.Eng.	Mid Atl.	E. N. Cen.	W. N. Cen.	S. Atl.	E. S. Cen.	W. S. Cen.	Mtn.	Pacific	P.R.,V.I. etc.
Population*	33.6 M	12.0	12.0	12.0	13.0	13.0	8.0	10.0	10.0	10.0	X
Orig.sample	10209	3.1	17.4	16.8	6.6	20.3	5.4	10.5	5.7	12.8	1.4
Rx coverage sample	7539	3.0	17.9	17.6	6.9	19.5	5.2	10.3	6.1	12.7	0.8
Rx generosity sample	6426	3.0	17.7	17.6	6.9	19.4	5.4	10.3	6.0	12.9	0.8
Subjects removed from Rx coverage sample	4783	3.0	16.4	15.4	6.0	22.6	6.8	10.2	4.8	11.9	2.9
Subjects removed from Generosity sample	5896	3.0	16.9	15.8	6.1	22.2	6.4	10.2	5.0	11.9	2.5

1994	n	N.Eng.	Mid Atl.	E. N. Cen.	W. N. Cen.	S. Atl.	E. S. Cen.	W. S. Cen.	Mtn.	Pacific	P.R.,V.I. etc.
Population*	34.0 M	12.0	12.0	12.0	13.0	13.0	8.0	10.0	10.0	10.0	X
Orig.sample	10576	3.1	16.9	17.0	6.5	20.7	5.4	10.4	5.8	12.6	1.6
Rx coverage sample	7685	3.1	17.4	17.8	6.9	20.0	5.2	10.2	6.3	12.3	0.8
Rx generosity sample	6535	3.1	17.2	17.7	7.0	20.1	5.5	10.2	6.1	12.3	0.8
Subjects removed from Rx coverage sample	5086	3.1	15.9	15.5	5.6	23.0	6.5	10.1	4.7	12.2	3.4
Subjects removed from Generosity sample	6236	3.0	16.5	16.1	5.7	22.3	5.9	10.2	5.2	12.2	2.9

Table C.6 Census Region Distribution of Medicare Beneficiaries, 65 years and older, in percents

1995	n	N.Eng.	Mid Atl.	E. N. Cen.	W. N. Cen.	S. Atl.	E. S. Cen.	W. S. Cen.	Mtn.	Pacific	P.R.,V.I. etc.
Population*	34.3 M	12.0	12.0	12.0	13.0	13.0	8.0	10.0	10.0	10.0	X
Orig.sample	9995	3.1	16.8	17.3	6.9	20.3	5.2	10.4	5.7	12.5	1.8
Rx coverage sample	7206	2.8	17.4	18.0	7.3	19.7	5.1	10.0	6.3	12.5	0.9
Rx generosity sample	6237	2.8	17.1	18.1	7.3	19.9	5.1	10.1	6.2	12.5	0.9
Subjects removed from Rx coverage sample	4884	3.2	15.8	15.8	5.7	22.2	6.4	10.5	4.6	11.8	4.0
Subjects removed from Generosity sample	5853	3.2	16.3	16.2	5.9	21.6	6.1	10.4	5.0	11.8	3.5

Table C.7 Metropolitan Residence Distribution of Medicare Beneficiaries, 65 years and older, in percents

1992	n	Metro	Non-Metro
Population*	33.1 M	73.8	26.2
Orig.sample	10616	73.3	26.7
Rx coverage sample	7659	73.8	26.2
Rx generosity sample	6720	74.1	25.9
Subjects removed from Rx coverage sample	5355	72.3	27.7
Subjects removed from Generosity sample	6294	72.1	27.9

1993	n	Metro	Non-Metro
Population*	33.6 M	74.1	25.9
Orig.sample	10209	73.3	26.7
Rx coverage sample	7539	74.2	25.8
Rx generosity sample	6426	74.9	25.1
Subjects removed from Rx coverage sample	4783	71.2	28.8
Subjects removed from Generosity sample	5896	71.0	29.0

1994	n	Metro	Non-Metro
Population*	0	74.3	25.7
Orig.sample	10576	73.3	26.7
Rx coverage sample	7685	73.9	26.1
Rx generosity sample	6535	74.1	25.9
Subjects removed from Rx coverage sample	5086	71.6	28.4
Subjects removed from Generosity sample	6236	71.9	28.1

1995	n	Metro	Non-Metro
Population*	34.3 M	73.9	26.1
Orig.sample	9995	72.5	27.5
Rx coverage sample	7206	72.9	27.1
Rx generosity sample	6237	73.1	26.9
Subjects removed from Rx coverage sample	4884	71.5	28.5
Subjects removed from Generosity sample	5853	71.6	28.4

Table C.8 Number of Chronic Diseases of Medicare Beneficiaries, 65 years and older, in percents

1992	n	0	1	2+
Population*	33.1 M	13.5	21.9	64.6
Orig.sample	10631	9.9	17.8	72.3
Rx coverage sample	7659	10.7	19.2	70.1
Rx generosity sample	6720	7.3	17.6	75.1
Subjects removed from Rx coverage sample	5380	10.1	19.1	70.9
Subjects removed from Generosity sample	6319	13.8	20.8	65.4

1993	n	0	1	2+
Population*	33.6 M	12.0	18.1	69.9
Orig.sample	10211	8.4	15.3	76.3
Rx coverage sample	7539	9.4	17.2	73.4
Rx generosity sample	6426	5.8	15.3	78.9
Subjects removed from Rx coverage sample	4791	8.2	16.5	75.2
Subjects removed from Generosity sample	5904	12.4	18.6	69.0

1994	n	0	1	2+
Population*	34.0 M	11.1	17.9	71.0
Orig.sample	10579	7.4	14.8	77.8
Rx coverage sample	7685	8.4	16.4	75.2
Rx generosity sample	6535	5.2	14.3	80.5
Subjects removed from Rx coverage sample	5092	7.2	15.9	76.8
Subjects removed from Generosity sample	6242	10.8	18.3	70.9

1995	n	0	1	2+
Population*	34.3 M	11.4	17.6	71.0
Orig.sample	9999	7.9	14.7	77.4
Rx coverage sample	7206	8.9	16.3	74.8
Rx generosity sample	6237	5.9	14.0	80.1
Subjects removed from Rx coverage sample	4890	7.9	16.0	76.1
Subjects removed from Generosity sample	5859	11.2	18.5	70.3

Table C.9 Self-Perceived Health Status of Medicare Beneficiaries, 65 years and older, in percents

1992	n	exc.	v.good	good	fair	poor
Population*	33.1 M	17.16	26.3	29.82	18.9	7.9
Orig.sample	10602	16.6	25.3	29.7	20.0	8.4
Rx coverage sample	7659	18.6	28.7	30.3	16.4	6.0
Rx generosity sample	6720	16.9	27.8	31.2	17.5	6.6
Subjects removed from Rx coverage sample	5346	9.3	14.7	26.4	29.3	20.4
Subjects removed from Generosity sample	6285	12.5	17.6	26	26.2	17.7

1993	n	exc.	v.good	good	fair	poor
Population*	33.6 M	17.02	26.5	30.14	18.8	7.6
Orig.sample	10173	15.9	25.0	29.9	20.8	8.4
Rx coverage sample	7539	18.6	28.4	30.9	16.6	5.5
Rx generosity sample	6426	16.2	28.0	31.8	18.0	6.0
Subjects removed from Rx coverage sample	4746	8.1	13.9	27.2	31.1	19.7
Subjects removed from Generosity sample	5859	12.7	17.1	26.9	26.8	16.5

1994	n	exc.	v.good	good	fair	poor
Population*	34.0 M	16.57	26.5	31.22	18.4	7.3
Orig.sample	10553	15.3	24.9	31	20.7	8.1
Rx coverage sample	7685	17.9	28.6	32.1	16.1	5.3
Rx generosity sample	6535	15.7	27.9	33.2	17.5	5.7
Subjects removed from Rx coverage sample	5059	8.1	14.2	27.9	31.4	18.4
Subjects removed from Generosity sample	6209	12.2	17.6	27.6	27.1	15.5

1995	n	exc.	v.good	good	fair	poor
Population*	34.3 M	17	27.4	30.17	18.1	7.4
Orig.sample	9986	15.4	25.6	30.2	20.5	8.3
Rx coverage sample	7206	18.3	29.6	30.6	16.2	5.3
Rx generosity sample	6237	16.3	29.1	31.5	17.3	5.8
Subjects removed from Rx coverage sample	4871	7.7	14.3	28.1	31.0	18.9
Subjects removed from Generosity sample	5840	11.6	17.3	27.6	27.4	16.1

Appendix C

Table C.10 Number of ADLs (0 - 6) of Medicare Beneficiaries, 65 years and older, in percents

Estimates from literature (Aging, 1996; HCFA, 1999; Olin, Liu, & Merriman, 1999; Statistics, 1999)

1992	n	0	1	2	3	4	5	6
Population*		80 to 87,	(1+) "5 to		6 to 10			
	33.1 M	79,	8	2,"6 to 9	(3 +)	X	X	X
Orig.sample	10631	61.5	13.9	7.1	4.3	3.6	4.7	4.9
Rx coverage sample	7659	69.6	13.7	6.4	3.5	2.8	2.4	1.6
Rx generosity sample	6720	67.9	14.7	6.8	3.9	3.0	2.4	1.3
Subjects removed from Rx coverage sample	5380	45.2	15.3	9.5	6.7	5.9	8.2	9.2
Subjects removed from Generosity sample	6319	50.6	14.0	8.5	5.9	5.3	7.3	8.4

1993	n	0.0	1.0	2.0	3.0	4.0	5.0	6.0
Population*		80 to 87,			6 to 10			
	33.6 M	79,	5 to 8	2,"6 to 9	(3 +)	X	X	X
Orig.sample	10211	61.6	12.8	7.3	4.3	3.7	4.9	5.4
Rx coverage sample	7539	70.2	12.9	6.4	3.7	2.6	2.6	1.6
Rx generosity sample	6426	68.8	13.8	6.8	4.0	2.8	2.5	1.3
Subjects removed from Rx coverage sample	4791	43.7	14.7	9.9	6.5	5.9	8.5	10.7
Subjects removed from Generosity sample	5904	50.2	13.4	8.7	5.7	5.1	7.6	9.3

Table C.10 Number of ADLs (0 - 6) of Medicare Beneficiaries, 65 years and older, in percents

1994	n	0.0	1.0	2.0	3.0	4.0	5.0	6.0
Population*		80 to 87,			6 to 10			
	34.0 M	79,	5 to 8	2,"6 to 9	(3 +)	X	X	X
Orig.sample	10579	61.8	12.1	7.6	4.4	3.6	5.0	5.5
Rx coverage sample	7685	70.9	12.2	6.9	3.5	2.5	2.4	1.6
Rx generosity sample	6535	69.5	13.0	7.3	3.7	2.7	2.6	1.2
Subjects removed from Rx coverage sample	5092	44.2	14.0	10.0	6.3	6.0	8.9	10.6
Subjects removed from Generosity sample	6242	50.6	12.8	8.8	5.6	5.3	7.6	9.3

1995	n	0.0	1.0	2.0	3.0	4.0	5.0	6.0
Population*		80 to 87,			6 to 10			
	34.3 M	79,	5 to 8	2,"6 to 9	(3 +)	X	X	X
Orig.sample	9999	62.0	12.3	7.1	4.3	3.7	4.9	5.7
Rx coverage sample	7206	71.5	12.0	6.2	3.3	2.9	2.5	1.6
Rx generosity sample	6237	70.1	12.9	6.4	3.6	3.1	2.5	1.4
Subjects removed from Rx coverage sample	4890	45.0	14.6	9.5	6.1	5.5	8.4	11.0
Subjects removed from Generosity sample	5859	50.8	13.3	8.6	5.4	4.8	7.4	9.7

Table C.11 Number of IADLs (0 - 6) of Medicare Beneficiaries, 65 years and older, in percents

*Estimates from literature (Olin et al., 1999; Whittle & Goldenberg, 1996)

1992	n	0	1	2	3	4	5	6
Population*	33.1 M	83.0	17 (1+)	X	X	X	X	X
Orig.sample	10631	67.1	17.0	6.8	4.5	2.9	1.1	0.6
Rx coverage sample	7659	74.2	14.3	5.2	3.2	1.7	0.9	0.5
Rx generosity sample	6720	72.8	15.1	5.8	3.2	1.6	1.0	0.5
Subjects removed from Rx coverage sample	5380	46.0	24.4	11.9	8.9	6.0	1.9	0.9
Subjects removed from Generosity sample	6319	51.7	22.1	10.4	8.0	5.4	1.6	0.8

1993	n	0.0	1.0	2.0	3.0	4.0	5.0	6.0
Population*	33.6 M	83.0	13 (1+)	X	X	X	X	X
Orig.sample	10211	67.1	16.9	6.5	4.5	3.1	1.3	0.6
Rx coverage sample	7539	74.4	13.9	5.1	3.3	1.7	1.1	0.5
Rx generosity sample	6426	73.5	14.3	5.3	3.4	1.7	1.2	0.6
Subjects removed from Rx coverage sample	4791	46.0	25.4	11.3	8.4	6.1	2.0	0.8
Subjects removed from Generosity sample	5904	52.4	22.7	9.8	7.4	5.4	1.6	0.7

1994	n	0.0	1.0	2.0	3.0	4.0	5.0	6.0
Population*	34.0 M	83.0	13 (1+)	X	X	X	X	X
Orig.sample	10579	67.3	16.6	6.9	4.4	2.9	1.2	0.7
Rx coverage sample	7685	74.7	13.7	5.4	3.1	1.8	0.9	0.4
Rx generosity sample	6535	73.5	14.3	5.8	3.1	1.8	1.0	0.5
Subjects removed from Rx coverage sample	5092	47.6	24.4	10.9	8.5	5.5	2.0	1.1
Subjects removed from Generosity sample	6242	53.8	21.8	9.5	7.5	4.8	1.6	1.0

1995	n	0.0	1.0	2.0	3.0	4.0	5.0	6.0
Population*	34.3 M	83.0	13 (1+)	X	X	X	X	X
Orig.sample	9999	67.8	17.0	6.5	4.3	2.7	1.0	0.7
Rx coverage sample	7206	75.3	13.9	5.1	2.9	1.5	0.8	0.5
Rx generosity sample	6237	74.2	14.3	5.4	3.1	1.5	0.9	0.6
Subjects removed from Rx coverage sample	4890	48.1	24.6	11.0	8.3	5.5	1.6	0.9
Subjects removed from Generosity sample	5859	53.8	22.4	9.7	7.1	4.8	1.4	0.8

Table C.12 Insurance Coverage Distribution of Medicare Beneficiaries, 65 years and older, in percents

1992	n	Medicare	HMO	Private	Private/ HMO	Medicaid
Population*	33.1 M					
Orig.sample	10540	10.7	8.0	62.7	2.4	16.2
Subjects removed from Rx coverage sample	5284	17.1	3.9	24.7	1.2	53.1
Subjects removed from Rx Generosity sample	6223	18.9	4.7	30.0	1.3	45.1

1993	n	Medicare	HMO	Private	Private/ HMO	Medicaid
Population*	33.6 M					
Orig.sample	10044	10.7	8.9	60.8	2.6	17.0
Subjects removed from Rx coverage sample	4619	16.9	3.7	19.1	1.1	59.2
Subjects removed from Rx Generosity sample	5732	18.2	5.1	27.8	1.2	47.7

1994	n	Medicare	HMO	Private	Private/ HMO	Medicaid
Population*	34.0 M					
Orig.sample	10379	10.6	9.1	59.4	3.1	17.8
Subjects removed from Rx coverage sample	4888	17.2	3.3	18.7	1.2	59.6
Subjects removed from Rx Generosity sample	6038	18.6	4.8	26.9	1.5	48.2

1995	n	Medicare	HMO	Private	Private/ HMO	Medicaid
Population*	34.3 M					
Orig.sample	9807	9.8	10.1	57.6	4.1	18.4
Subjects removed from Rx coverage sample	4691	15.6	4.1	17.2	1.8	61.3
Subjects removed from Rx Generosity sample	5660	16.6	5.4	25.1	2.1	50.8

Appendix D

One-Stage Approach	Two-Stage Approach
D.1 0/1 Dependent, Rx Coverage	E.1 Events, Rx Coverage
D.2 0/1 Dependent, Rx Generosity	F.1 Events, Rx Generosity
D.3 $ Dependent, Rx Coverage	E.3 $ + $1, Rx Coverage
D.4 $ Dependent, Rx Generosity	F.2 $ + $1, Rx Generosity

As a "sanity check", I compared the results of the one-stage model with the two-stage model. There was overall consistency with regards to the direction of the model coefficient estimates.

Table D.1a 1992 Inpatient Hospital Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 IPEXP92 W/COV	n = 7659 0 = 6416 1 = 1243						
INS92 (ns) RxCOV92 (ns) INS92*RxCOV92 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.1290	1.14	0.1966	-0.19	0.45	0.82	1.57
PRIVATE	0.2162	1.24	0.1143	0.03	0.40	1.03	1.50
PRIVATE + HMO	-0.1291	0.88	0.4098	-0.80	0.55	0.45	1.72
MEDICARE HMO Rxcov.	0.0394	1.09	0.2204	-0.32	0.40	0.48	2.52
PRIVATE Rxcov.	-0.0693	0.85	0.0793	-0.20	0.06	0.63	1.15
PRIVATE + HMO Rxcov.	0.2004	1.59	0.4661	-0.57	0.97	0.27	9.27

Table D.1b 1992 Medical Provider Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 MPEXP92 W/COV	n = 7659 0 = 532 1 = 7127						
INS92 (C.S. = 57.43, P = .0001) RxCOV92 (ns) INS92*RxCOV92 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.6850	1.98	0.2392	0.29	1.08	1.96	11.98
PRIVATE	0.9437	2.57	0.1375	0.72	1.17	5.22	14.79
PRIVATE + HMO	1.2208	3.39	0.6279	0.19	2.25	1.54	179.35
MEDICARE HMO Rxcov.	0.3281	2.13	0.2968	-0.16	0.82	0.69	6.55
PRIVATE Rxcov.	0.1049	1.27	0.1260	-0.10	0.31	0.79	2.05
PRIVATE + HMO Rxcov.	0.6391	4.36	0.8063	-0.69	1.97	0.21	92.36

Table D.1c 1992 Outpatient Hospital Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 OPEXP92 W/COV	n = 7659 0 = 3405 1 = 4254						
INS92 (C.S. = 39.34, P = .0001) RxCOV92 (ns) INS92*RxCOV92 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.6156	1.85	0.1410	0.38	0.85	2.42	7.04
PRIVATE	0.4978	1.65	0.0843	0.36	0.64	2.29	4.33
PRIVATE + HMO	0.6055	1.83	0.2756	0.15	1.06	1.42	11.45
MEDICARE HMO Rxcov.	-0.1110	0.77	0.1562	-0.37	0.15	0.43	1.40
PRIVATE Rxcov.	-0.0162	0.96	0.0578	-0.11	0.08	0.77	1.20
PRIVATE + HMO Rxcov.	-0.0550	0.88	0.3128	-0.57	0.46	0.27	2.88

Table D.1d 1992 Prescription Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 PMEXP92 W/COV	n = 7659 0 = 1152 1 = 6507						
INS92 (C.S. = 131.48, P = .0001) **RxCOV92 (C.S. = 4.74, P = .0294)** **INS92*RxCOV92 (C.S. = 8.69, P = .0130)**	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.8631	2.37	0.1799	0.57	1.16	3.69	14.42
PRIVATE	1.1302	3.10	0.1050	0.96	1.30	9.07	20.09
PRIVATE + HMO	0.7021	2.02	0.3528	0.12	1.28	1.32	19.16
MEDICARE HMO Rxcov.	0.5602	3.63	0.2246	0.19	0.93	1.55	8.50
PRIVATE Rxcov.	0.0860	1.22	0.0881	-0.06	0.23	0.87	1.70
PRIVATE + HMO Rxcov.	1.1873	15.39	0.4645	0.42	1.95	2.65	89.41

Table D.1e 1992 Miscellaneous Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 MISEXP92 W/COV	n = 7659 0 = 7425 1 = 234						
INS92 (C.S. = 86.38, P = .0001) **RxCOV92 (C.S. = 15.87, P = .0001)** INS92*RxCOV92 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	Lower	CI Upper	CI Lower Converted	CI Higher Converted

Table D.1f 1993 Inpatient Hospital Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 INEXP93 W/COV	n = 7539 0 = 6289 1 = 1250						
INS93 (C.S. = 8.25, P = .0412) RxCOV93 (ns) INS93*RxCOV93 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	-0.2242	0.80	0.2133	-0.58	0.13	0.27	1.34
PRIVATE	0.1727	1.19	0.1171	-0.02	0.37	0.96	2.32
PRIVATE + HMO	0.6744	1.96	0.3555	0.09	1.26	1.23	18.16
MEDICARE HMO Rxcov.	0.3784	2.39	0.2290	0.00	0.76	1.00	5.69
PRIVATE Rxcov.	0.1083	1.28	0.0760	-0.02	0.23	0.96	1.71
PRIVATE + HMO Rxcov.	-0.3098	0.49	0.4010	-0.97	0.35	0.11	2.24

Table D.1g 1993 Medical Provider Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 MPEXP93 W/COV	n = 7539 0 = 401 1 = 7138						
INS93 (C.S. = 48.92, P = .0001) RxCOV93 (ns) **INS93*RxCOV93 (C.S. = 6.71, P = .0349)**	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

Table D.1h 1993 Outpatient Hospital Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 OPEXP93 W/COV	n = 7539 0 = 3190 1 = 4349						
INS93 (C.S. = 13.77, P = .0032) RxCOV93 (ns) INS93*RxCOV93 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.2473	1.28	0.1425	0.01	0.48	1.03	3.03
PRIVATE	0.2798	1.32	0.0865	0.14	0.42	1.37	2.64
PRIVATE + HMO	0.4671	1.60	0.3015	-0.03	0.96	0.94	9.18
MEDICARE HMO Rxcov.	-0.0393	0.91	0.1512	-0.29	0.21	0.52	1.62
PRIVATE Rxcov.	0.0361	1.09	0.0574	-0.06	0.13	0.87	1.35
PRIVATE + HMO Rxcov.	-0.0909	0.81	0.3321	-0.64	0.46	0.23	2.85

Table D.1I 1993 Prescription Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 PMEXP93 W/COV	n = 7539 0 = 1113 1 = 6426						
INS93 (C.S. = 130.47, P = .0001) RxCOV93 (ns) **INS93*RxCOV93 (C.S. = 6.09, P = .0477)**	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate Lower	CI Upper	CI Lower Converted	CI Higher Converted	

Table D.1J 1993 Miscellaneous Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 MISEXP93 W/COV	n = 7539 0 = 7308 1 = 231						
INS93 (C.S. = 122.49, P = .0001) RxCOV93 (ns) INS93*RxCOV93 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate Lower	CI Upper	CI Lower Converted	CI Higher Converted	

Table D.1k 1994 Inpatient Hospital Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 INEXP94 W/COV	n = 7685 0 = 6404 1 = 1281						
INS94 (C.S. = 9.50, P = .0233) RxCOV94 (ns) INS94*RxCOV94 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate Lower	CI Upper	CI Lower Converted	CI Higher Converted	
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.0870	1.09	0.2032	-0.25	0.42	0.57	2.64
PRIVATE	0.3112	1.37	0.1198	0.11	0.51	1.30	3.22
PRIVATE + HMO	0.7345	2.08	0.3585	0.14	1.32	1.40	21.10
MEDICARE HMO Rxcov.	-0.0430	0.91	0.2167	-0.40	0.31	0.40	2.06
PRIVATE Rxcov.	-0.0885	0.82	0.0772	-0.22	0.04	0.61	1.09
PRIVATE + HMO Rxcov.	-0.4134	0.39	0.3902	-1.06	0.23	0.09	1.69

Table D.1m 1994 Medical Provider Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 MPEXP94 W/COV	n = 7685 0 = 417 1 = 7268						
INS94 (C.S. = 40.67, P = .0001) RxCOV94 (ns) INS94*RxCOV94 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate Lower	CI Upper	CI Lower Converted	CI Higher Converted	

Table D.1n 1994 Outpatient Hospital Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 OPEXP94 W/COV	n = 7685 0 = 3077 1 = 4608						
INS94 (C.S. = 20.99, P = .0001) RxCOV94 (ns) INS94*RxCOV94 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.3699	1.45	0.1475	0.13	0.61	1.34	4.10
PRIVATE	0.3924	1.48	0.0868	0.25	0.54	1.78	3.43
PRIVATE + HMO	0.5789	1.78	0.2843	0.11	1.05	1.29	11.13
MEDICARE HMO Rxcov.	-0.1388	0.73	0.1534	-0.39	0.11	0.41	1.30
PRIVATE Rxcov.	-0.0985	0.80	0.0583	-0.19	0.00	0.64	0.99
PRIVATE + HMO Rxcov.	-0.0654	0.86	0.3064	-0.57	0.44	0.27	2.75

Table D.1p 1994 Prescription Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 PMEXP94 W/COV	n = 7685 0 = 1150 1 = 6535						
INS94 (C.S. = 152.87, P = .0001) RxCOV94 (ns) INS94*RxCOV94 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.9899	2.69	0.1968	0.67	1.31	4.64	20.59
PRIVATE	1.2900	3.63	0.1103	1.11	1.47	12.84	29.61
PRIVATE + HMO	1.1573	3.18	0.3963	0.51	1.81	3.20	64.45
MEDICARE HMO Rxcov.	0.2414	1.74	0.2181	-0.12	0.60	0.76	3.98
PRIVATE Rxcov.	-0.0329	0.93	0.0890	-0.18	0.11	0.66	1.30
PRIVATE + HMO Rxcov.	0.6147	4.12	0.4560	-0.14	1.36	0.73	23.16

Table D.1q 1994 Miscellaneous Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 MISEXP94 W/COV	n = 7685 0 = 7424 1 = 261						
INS94 (C.S. = 93.01, P = .0001) RxCOV94 (ns) INS94*RxCOV94 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	-0.8546	0.43	0.3179	-1.38	-0.33	0.04	0.47
PRIVATE	-1.8057	0.16	0.1972	-2.13	-1.48	0.01	0.03
PRIVATE + HMO	-1.5043	0.22	1.0489	-3.23	0.22	0.00	1.66
MEDICARE HMO Rxcov.	-0.9211	0.12	0.4331	-1.63	-0.21	0.02	0.62
PRIVATE Rxcov.	0.0492	1.12	0.1987	-0.28	0.38	0.53	2.38
PRIVATE + HMO Rxcov.	-0.2813	0.52	1.1969	-2.25	1.69	0.01	48.71

Table D.1r 1995 Inpatient Hospital Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 IPEXP95 W/COV	n = 7206 0 = 5984 1 = 1222						
INS95 (C.S. = 8.79, P = .0323) RxCOV95 (ns) INS95*RxCOV95 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.1301	1.14	0.2614	-0.30	0.56	0.50	3.63
PRIVATE	0.3569	1.43	0.1258	0.15	0.56	1.41	3.66
PRIVATE + HMO	0.2542	1.29	0.4928	-0.56	1.06	0.28	11.61
MEDICARE HMO Rxcov.	0.1189	1.31	0.2613	-0.31	0.55	0.49	3.54
PRIVATE Rxcov.	-0.1272	0.75	0.0789	-0.26	0.00	0.55	1.01
PRIVATE + HMO Rxcov.	-0.2911	0.51	0.5100	-1.13	0.55	0.07	3.53

Table D.1s 1995 Medical Provider Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 MPEXP95 W/COV	n = 7206 0 = 353 1 = 6853						
INS95 (C.S. + 77.36, P = .0001) RxCOV95 (ns) **INS95*RxCOV95 (C.S. = 6.62, P = .0365)**	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.3835	1.47	0.3621	-0.21	0.98	0.61	9.53
PRIVATE	1.5266	4.60	0.1782	1.23	1.82	17.12	66.03
PRIVATE + HMO	0.1482	1.16	0.6648	-0.95	1.24	0.11	17.45
MEDICARE HMO Rxcov.	0.7697	5.88	0.3858	0.14	1.40	1.36	25.37
PRIVATE Rxcov.	-0.2188	0.60	0.1622	-0.49	0.05	0.33	1.12
PRIVATE + HMO Rxcov.	0.8551	7.16	0.7040	-0.30	2.01	0.50	103.08

Table D.1t 1995 Outpatient Hospital Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 OPEXP95 W/COV	n = 7206 0 = 2702 1 = 4504						
INS95 (C.S. = 36.56, P = .0001) **RxCOV95 (C.S. = 6.7, P = .0097)** INS95*RxCOV95 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.3357	1.40	0.2006	0.01	0.67	1.01	4.63
PRIVATE	0.5593	1.75	0.0951	0.40	0.72	2.53	5.20
PRIVATE + HMO	1.4817	4.40	0.4733	0.70	2.26	5.05	182.09
MEDICARE HMO Rxcov.	-0.1296	0.74	0.2000	-0.46	0.20	0.35	1.58
PRIVATE Rxcov.	-0.1402	0.72	0.0631	-0.24	-0.04	0.57	0.92
PRIVATE + HMO Rxcov.	-1.0216	0.10	0.4798	-1.81	-0.23	0.02	0.59

Table D.1u 1995 Prescription Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 PMEXP95 W/COV	n = 7206 0 = 969 1 = 6237						
INS95 (C.S. = 109.36, P = .0001) RxCOV95 (ns) INS95*RxCOV95 (ns)	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.8135	2.26	0.2748	0.36	1.27	2.30	18.43
PRIVATE	1.2181	3.38	0.1231	1.02	1.42	10.37	26.34
PRIVATE + HMO	1.4710	4.35	0.6470	0.41	2.54	2.55	343.02
MEDICARE HMO Rxcov.	0.3548	2.26	0.2851	-0.11	0.82	0.77	6.66
PRIVATE Rxcov.	-0.1165	0.76	0.0957	-0.27	0.04	0.53	1.10
PRIVATE + HMO Rxcov.	0.0908	1.23	0.6707	-1.01	1.19	0.10	15.64

Table D.1v 1995 Miscellaneous Expenditure, 0/1, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 MISEXP95 W/COV	n = 7206 0 = 6957 1 = 249						
INS95 (C.S. = 50.50, P = .0001) RxCOV95 (ns) **INS95*RxCOV95 (C.S.= 11.40, P= .0034)**	Model Coefficient Estimate	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.3509	1.42	0.3418	-0.21	0.91	0.61	8.19
PRIVATE	-1.3666	0.25	0.2142	-1.72	-1.01	0.02	0.10
PRIVATE + HMO	0.0187	1.02	0.7112	-1.15	1.19	0.07	15.44
MEDICARE HMO Rxcov.	-1.3687	0.04	0.3902	-2.01	-0.73	0.01	0.19
PRIVATE Rxcov.	0.0224	1.05	0.1978	-0.30	0.35	0.50	2.23
PRIVATE + HMO Rxcov.	-1.2728	0.05	0.8103	-2.61	0.06	0.00	1.15

Prescription Expenditure,0/1, Rx Generosity tables are missing (All subjects in sample had Rx expenditure)

Some tables are missing model coefficient estimates due to the algorithm's failure to converge. In these cases, convergence was possible only if various covariates were removed but model symmetry among the analyses would be lost. Since models in the two-stage analyses were not considered in this dissertation, further model revision was not pursued.

Table D.2a 1992 Inpatient Hospital Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 IPEXP92 W/COV	n = 6720 0 = 5508 1= 1212						
INS92 (ns) **GENrx (C.S. = 10.73, P= .0133)** INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.2563	1.29	0.2649	-0.18	0.69	0.84	2.00
PRIVATE	-0.0628	0.94	0.1671	-0.34	0.21	0.71	1.24
PRIVATE + HMO	-0.6892	0.50	0.6459	-1.75	0.37	0.17	1.45
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	-0.1636	0.85	0.3499	-0.74	0.41	0.48	1.51
MCHMOgenFAIR	-0.1286	0.88	0.2644	-0.56	0.31	0.57	1.36
MCHMOgenGOOD	-0.6299	0.53	0.4101	-1.30	0.04	0.27	1.05
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.1945	1.21	0.1002	0.03	0.36	1.03	1.43
PRIVATEgenFAIR	0.3334	1.40	0.0975	0.17	0.49	1.19	1.64
PRIVATEgenGOOD	0.1097	1.12	0.1331	-0.11	0.33	0.90	1.39
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.9838	2.67	0.7833	-0.30	2.27	0.74	9.70
PRIV.+ HMOgenFAIR	0.4359	1.55	0.7039	-0.72	1.59	0.49	4.92
PRIV.+ HMOgenGOOD	1.1255	3.08	0.7483	-0.11	2.36	0.90	10.55

Table D.2b 1992 Medical Provider Hospital Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 MPEXP92 W/COV	n = 6720 0 = 149 1 = 6571						
INS92 (C.S. = 19.37, P = .0002) GENrx (ns) INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

Table D.2c 1992 Outpatient Hospital Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 OPEXP92 W/COV	n = 6720 0 = 2619 1= 4101						
INS92 (C.S. = 14.76, P = .0020) GENrx (C.S. = 12.24, P= .0066) INS92*GENrx (ns)	Model Coefficient Estimate .	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.6240	1.87	0.2000	0.30	0.95	1.34	2.59
PRIVATE	0.5087	1.66	0.1239	0.30	0.71	1.36	2.04
PRIVATE + HMO	0.4203	1.52	0.3578	-0.17	1.01	0.85	2.74
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.1826	1.20	0.2787	-0.28	0.64	0.76	1.90
MCHMOgenFAIR	-0.0310	0.97	0.2025	-0.36	0.30	0.69	1.35
MCHMOgenGOOD	-0.0552	0.95	0.2722	-0.50	0.39	0.60	1.48
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.0976	1.10	0.0774	-0.03	0.22	0.97	1.25
PRIVATEgenFAIR	0.2039	1.23	0.0756	0.08	0.33	1.08	1.39
PRIVATEgenGOOD	0.1455	1.16	0.0999	-0.02	0.31	0.98	1.36
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	-0.0252	0.98	0.4997	-0.85	0.80	0.43	2.22
PRIV.+ HMOgenFAIR	0.0880	1.09	0.3992	-0.57	0.74	0.57	2.11
PRIV.+ HMOgenGOOD	0.1716	1.19	0.4725	-0.61	0.95	0.55	2.58

Table D.2d 1992 Miscellaneous Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 MISEXP92 W/COV	n = 6720 0 = 6579 1= 141						
INS92 (ns) GENrx (ns) INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

Table D.2e 1993 Inpatient Hospital Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 IPEXP93 W/COV	n = 6426 0 = 5241 1= 1185						
INS92 (ns) **GENrx (C.S. = 8.11, P= .0437)** INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	-0.3887	0.68	0.33	-0.93	0.16	0.39	1.17
PRIVATE	0.0402	1.04	0.17	-0.23	0.31	0.79	1.37
PRIVATE + HMO	0.7876	2.20	0.41	0.11	1.46	1.12	4.32
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.1857	1.20	0.42	-0.51	0.88	0.60	2.40
MCHMOgenFAIR	0.3969	1.49	0.33	-0.15	0.95	0.86	2.57
MCHMOgenGOOD	0.3257	1.38	0.39	-0.31	0.97	0.73	2.63
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.2118	1.24	0.10	0.04	0.38	1.05	1.46
PRIVATEgenFAIR	0.2684	1.31	0.10	0.11	0.43	1.12	1.53
PRIVATEgenGOOD	0.0421	1.04	0.13	-0.18	0.26	0.84	1.30
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	-0.6435	0.53	0.61	-1.65	0.37	0.19	1.44
PRIV.+ HMOgenFAIR	-0.3569	0.70	0.47	-1.13	0.42	0.32	1.52
PRIV.+ HMOgenGOOD	-1.2275	0.29	0.61	-2.24	-0.22	0.11	0.80

Table D.2f 1993 Medical Provider Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 MPEXP93 W/COV	n = 6426 0 = 93 1= 6333						
INS92 (C.S. = 19.57, P = .0002) GENrx (ns) INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

Table D.2g 1993 Outpatient Hospital Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 OPEXP93 W/COV	n = 6426 0 = 2407 1= 4019						
INS92 (ns) GENrx (ns) INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

Table D.2h 1993 Miscellaneous Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 MISEXP93 W/COV	n = 6426 0 = 6306 1= 120						
INS92 (ns) GENrx (ns) INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

Table D.2i 1994 Inpatient Hospital Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 IPEXP94 W/COV	n = 6535 0 = 5316 1= 1219						
INS92 (ns) GENrx (ns) INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	-0.4107	0.66	0.33	-0.96	0.14	0.38	1.15
PRIVATE	0.1896	1.21	0.17	-0.09	0.47	0.91	1.60
PRIVATE + HMO	0.7866	2.20	0.38	0.16	1.42	1.17	4.12
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.9110	2.49	0.40	0.25	1.57	1.29	4.81
MCHMOgenFAIR	0.4090	1.51	0.33	-0.14	0.96	0.87	2.61
MCHMOgenGOOD	0.5191	1.68	0.38	-0.10	1.14	0.91	3.12
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.0593	1.06	0.11	-0.12	0.23	0.89	1.26
PRIVATEgenFAIR	0.1655	1.18	0.10	0.01	0.32	1.01	1.38
PRIVATEgenGOOD	-0.0924	0.91	0.13	-0.30	0.12	0.74	1.13
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	-0.8279	0.44	0.57	-1.77	0.11	0.17	1.12
PRIV.+ HMOgenFAIR	-0.7860	0.46	0.46	-1.55	-0.03	0.21	0.98
PRIV.+ HMOgenGOOD	0.0219	1.02	0.46	-0.74	0.78	0.48	2.19

Table D.2j 1994 Medical Provider Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 MPEXP94 W/COV	n = 6535 0 = 95 1= 6440						
INS92 (C.S. = 20.04, P = .0002) GENrx (ns) INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

Table D.2k 1994 Outpatient Hospital Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 OPEXP94 W/COV	n = 6535 0 = 2286 1= 4249						
INS92 (C.S. = 8.70, P = .0336) **GENrx (C.S. = 12.28, P = .0065)** **INS92*GENrx (C.S. = 23.92, P = .0044)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.4716	1.60	0.22	0.12	0.83	1.12	2.29
PRIVATE	0.2999	1.35	0.13	0.09	0.51	1.09	1.67
PRIVATE + HMO	-0.1206	0.89	0.31	-0.62	0.38	0.54	1.46
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	-0.1914	0.83	0.29	-0.66	0.28	0.52	1.32
MCHMOgenFAIR	-0.2026	0.82	0.21	-0.55	0.15	0.58	1.16
MCHMOgenGOOD	-0.1155	0.89	0.25	-0.52	0.29	0.59	1.34
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.1870	1.21	0.09	0.04	0.33	1.04	1.39
PRIVATEgenFAIR	0.1990	1.22	0.08	0.07	0.33	1.07	1.39
PRIVATEgenGOOD	0.0007	1.00	0.10	-0.16	0.16	0.85	1.18
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.8455	2.33	0.45	0.11	1.58	1.12	4.86
PRIV.+ HMOgenFAIR	1.0024	2.72	0.36	0.40	1.60	1.50	4.97
PRIV.+ HMOgenGOOD	0.5472	1.73	0.38	-0.07	1.17	0.93	3.21

Table D.2m 1994 Miscellaneous Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 MISEXP94 W/COV	n = 6535 0 = 6382 1= 153						
INS92 (ns) GENrx (ns) **INS92*GENrx (C.S. = 18.23, P = .0326)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

Table D.2n 1995 Inpatient Hospital Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 IPEXP95 W/COV	n = 6237 0 = 5059 1= 1178						
INS92 (ns) **GENrx (C.S. = 10.27, P = .0164)** INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.0743	1.08	0.32	-0.45	0.59	0.64	1.81
PRIVATE	0.0493	1.05	0.17	-0.23	0.33	0.79	1.40
PRIVATE + HMO	-0.3226	0.72	0.45	-1.06	0.42	0.35	1.52
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.1400	1.15	0.40	-0.51	0.79	0.60	2.20
MCHMOgenFAIR	0.1596	1.17	0.30	-0.34	0.66	0.71	1.93
MCHMOgenGOOD	0.1257	1.13	0.35	-0.45	0.70	0.64	2.01
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.2594	1.30	0.11	0.07	0.44	1.08	1.56
PRIVATEgenFAIR	0.2829	1.33	0.10	0.12	0.45	1.13	1.56
PRIVATEgenGOOD	0.0528	1.05	0.13	-0.15	0.26	0.86	1.30
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.7386	2.09	0.58	-0.22	1.69	0.80	5.44
PRIV.+ HMOgenFAIR	0.1401	1.15	0.49	-0.67	0.95	0.51	2.58
PRIV.+ HMOgenGOOD	0.1693	1.18	0.54	-0.73	1.07	0.48	2.90

Table D.2p 1995 Medical Provider Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 MPEXP95 W/COV	n = 6237 0 = 91 1= 6146						
INS92 (C.S. = 31.32, P = .0001) **GENrx (C.S. = 7.81, P = .0501)** INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

90% Confidence Intervals Significance at .05

Table D.2q 1995 Outpatient Hospital Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 OPEXP95 W/COV	n = 6237 0 = 2041 1= 4196						
INS92 (C.S. = 15.86, P = .0012) GENrx (ns) INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.3456	1.41	0.24	-0.04	0.73	0.96	2.08
PRIVATE	0.4311	1.54	0.13	0.21	0.65	1.23	1.92
PRIVATE + HMO	0.1702	1.19	0.30	-0.32	0.66	0.73	1.93
MCHMOgenNONE	0.0000	1.00		0.00	0.00	-1.00	1.00
MCHMOgenPOOR	-0.0491	0.95	0.31	-0.56	0.46	0.57	1.58
MCHMOgenFAIR	-0.0711	0.93	0.23	-0.44	0.30	0.64	1.35
MCHMOgenGOOD	-0.0785	0.92	0.26	-0.50	0.34	0.61	1.41
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.1433	1.15	0.10	-0.02	0.31	0.98	1.36
PRIVATEgenFAIR	0.0756	1.08	0.08	-0.06	0.21	0.94	1.24
PRIVATEgenGOOD	0.1658	1.18	0.10	0.00	0.33	1.00	1.40
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.0937	1.10	0.44	-0.63	0.81	0.54	2.25
PRIV.+ HMOgenFAIR	0.5626	1.76	0.32	0.03	1.10	1.03	3.00
PRIV.+ HMOgenGOOD	0.2761	1.32	0.36	-0.31	0.86	0.73	2.37

Table D.2r 1995 Miscellaneous Expenditure, 0/1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 MISEXP95 W/COV	n = 6237 0 = 6070 1= 167						
INS92 (ns) GENrx (ns) INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

Table D.3a 1992 Total Health Care Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG (TOTEXP) W/COV	n = 7288						
INS92 (F = 13.41, p = .0001) RxCOV92 (ns) INS92*RxCOV92 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0780	1.20	0.0246	0.04	0.12	1.09	1.31
PRIVATE Rxcov.	0.0279	1.07	0.0165	0.00	0.06	1.00	1.14

Table D.3b 1992 Inpatient Hospital Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(PAMTIP) W/COV	n = 1243						
INS92 (ns) RxCOV92 (ns) INS92*RxCOV92 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0012	1.00	0.0329	-0.05	0.06	0.89	1.14
PRIVATE Rx Coverage	0.0001	1.00	0.0238	-0.04	0.04	0.91	1.09

Table D.3c 1992 Medical Provider Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(PAMTMP) W/COV	n = 7127						
INS92 (F = 56.50, P = .0001) RxCOV92 (ns) INS92*RxCOV92 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.2013	1.59	0.0228	0.16	0.24	1.46	1.73
PRIVATE Rx Coverage	0.0074	1.02	0.0151	-0.02	0.03	0.96	1.08

Table D.3d 1992 Outpatient Hospital Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(PAMTOP) W/ COV	n = 4254						
INS92 (F = 5.29, P = .0012) RxCOV92 (ns) INS92*RxCOV92 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0146	1.03	0.0380	-0.05	0.08	0.90	1.19
PRIVATE Rx Coverage	0.0226	1.05	0.0242	-0.02	0.06	0.96	1.15

Table D.3e 1992 Prescription Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(PAMTPM) W/COV	n = 6507						
INS92 (F = 26.55, P = .0001) **RxCOV92 (F = 17.48, P = .0001)** **INS92*RxCOV92 (F =6.56, P = .0014)**	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1407	1.38	0.0243	0.10	0.18	1.26	1.52
PRIVATE Rx Coverage	0.0772	1.19	0.0153	0.05	0.10	1.13	1.27

Table D.3f 1992 Miscellaneous Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(MISC92) W/COV	n = 234						
INS92 (F = 16.88, P = .0001) RxCOV92 (ns) INS92*RxCOV92 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	-0.4621	0.35	0.0672	-0.57	-0.35	0.27	0.45
PRIVATE Rx Coverage	0.0730	1.18	0.1130	-0.11	0.26	0.77	1.82

Table D.3g 1993 Total Health Care Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(TOTEXP) W/COV	n = 7250						
INS93 (F = 7.15, P = .0001) **RxCOV93 (F = 5.60, P = .0180)** INS93*RxCOV93 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0288	1.07	0.0251	-0.01	0.07	0.97	1.17
PRIVATE Rx Coverage	0.0465	1.11	0.0162	0.02	0.07	1.05	1.18

Table D.3h 1993 Inpatient Hospital Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(PAMTIP) W/COV	n = 1250						
INS93 (F = 3.76, P = .0106) RxCOV93 (ns) **INS93*RxCOV93 (F=4.45, P = .0119)**	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0484	1.12	0.0414	-0.02	0.12	0.96	1.31
PRIVATE Rx Coverage	0.0015	1.00	0.0271	-0.04	0.05	0.91	1.11

Table D.3l 1993 Medical Provider Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(PAMTMP) W/COV	n = 7138						
INS93 (F = 51.31, P = .0001) RxCOV93 (ns) **INS93*RxCOV92 (F=4.17, P = .0154)**	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate Lower	CI Upper	CI Lower Converted	CI Higher Converted	
MEDICARE only	0.0000	1.00					
PRIVATE	0.1869	1.54	0.0237	0.15	0.23	1.41	1.68
PRIVATE Rx Coverage	0.0177	1.04	0.0151	-0.01	0.04	0.98	1.10

Table D.3J 1993 Outpatient Hospital Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(PAMTOP) W/COV	n = 4349						
INS93 (F = 3.85, P = .0091) RxCOV93 (ns) INS93*RxCOV93 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate Lower	CI Upper	CI Lower Converted	CI Higher Converted	
MEDICARE only	0.0000	1.00					
PRIVATE	0.0438	1.11	0.0383	-0.02	0.11	0.96	1.28
PRIVATE Rx Coverage	-0.0068	0.98	0.0239	-0.05	0.03	0.90	1.08

Table D.3k 1993 Prescription Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(PAMTPM) W/COV	n = 6426						
INS93 (F = 10.40, P = .0001) **RxCOV93 (F = 53.32, P = .0001)** INS93*RxCOV93 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate Lower	CI Upper	CI Lower Converted	CI Higher Converted	
MEDICARE only	0.0000	1.00					
PRIVATE	0.0759	1.19	0.0252	0.03	0.12	1.08	1.31
PRIVATE Rx Coverage	0.1092	1.29	0.0152	0.08	0.13	1.21	1.36

Table D.3m 1993 Miscellaneous Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(MISC93) W/COV	n = 231						
INS93 (F = 17.37, P = .0001) RxCOV93 (ns) **INS93*RxCOV93 (F=6.22, P = .0025)**	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate Lower	CI Upper	CI Lower Converted	CI Higher Converted	
MEDICARE only	0.0000	1.00					
PRIVATE	-0.5715	0.27	0.0847	-0.71	-0.43	0.19	0.37
PRIVATE Rx Coverage	0.0753	1.19	0.0904	-0.07	0.22	0.84	1.67

Table D.3n 1994 Total Health Care Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(TOTEXP) W/COV	n = 7388						
INS94 (F = 12.65, P = .0001) **RxCOV94 (F = 4.74, P = .0296)** **INS94*RxCOV94 (F=3.25, P = .0389)**	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate Lower	CI Upper	CI Lower Converted	CI Higher Converted	
MEDICARE only	0.0000	1.00					
PRIVATE	0.0407	1.10	0.0252	0.00	0.08	1.00	1.21
PRIVATE Rx Coverage	0.0455	1.11	0.0163	0.02	0.07	1.04	1.18

Table D.3p 1994 Inpatient Hospital Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(PAMTIP) W/COV	n = 1281						
INS94 (F = 7.37, P = .0001) RxCOV94 (ns) **INS94*RxCOV94 (F=3.17, P = .0424)**	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate Lower	CI Upper	CI Lower Converted	CI Higher Converted	
MEDICARE only	0.0000	1.00					
PRIVATE	0.0540	1.13	0.0400	-0.01	0.12	0.97	1.32
PRIVATE Rx Coverage	0.0357	1.09	0.0256	-0.01	0.08	0.99	1.20

Table D.3q 1994 Medical Provider Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(PAMTMP) W/COV	n = 7268						
INS94 (F = 53.73, P = .0001) RxCOV94 (ns) INS94*RxCOV94 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate Lower	CI Upper	CI Lower Converted	CI Higher Converted	
MEDICARE only	0.0000	1.00					
PRIVATE	0.1880	1.54	0.0237	0.15	0.23	1.41	1.69
PRIVATE Rx Coverage	0.0238	1.06	0.0152	0.00	0.05	1.00	1.12

Table D.3r 1994 Outpatient Hospital Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(PAMTOP) W/COV	n = 4608						
INS94 (F = 6.36, P = .0003) RxCOV94 (ns) INS94*RxCOV94 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate Lower	CI Upper	CI Lower Converted	CI Higher Converted	
MEDICARE only	0.0000	1.00					
PRIVATE	0.0089	1.02	0.0383	-0.05	0.07	0.88	1.18
PRIVATE Rx Coverage	0.0156	1.04	0.0238	-0.02	0.05	0.95	1.13

Table D.3s 1994 Prescription Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(PAMTPM) W/COV	n = 6535						
INS94 (F = 7.65, P = .0001) **RxCOV94 (F = 53.95, P = .0001)** INS94*RxCOV94 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate Lower		CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0601	1.15	0.0258	0.02	0.10	1.04	1.27
PRIVATE Rx Coverage	0.1147	1.30	0.0155	0.09	0.14	1.23	1.38

Table D.3t 1994 Miscellaneous Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(MISC94) W/COV	n = 261						
INS94 (F = 24.10, P = .0001) RxCOV94 (ns) **INS94*RxCOV94 (F = 7.58, P = .0007)**	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate Lower		CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	-0.6602	0.22	0.0777	-0.79	-0.53	0.16	0.29
PRIVATE Rx Coverage	0.1462	1.40	0.0868	0.00	0.29	1.01	1.95

Table D.3u 1995 Total Health Care Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(TOTEXP) W/COV	n = 6966						
INS95 (F =12.03, P = .0001) RxCOV95 (ns) **INS95*RxCOV95 (F = 3.30, P = .0369)**	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate Lower		CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0672	1.17	0.0270	0.02	0.11	1.05	1.29
PRIVATE Rx Coverage	0.0188	1.04	0.0170	-0.01	0.05	0.98	1.11

Table D.3v 1995 Inpatient Hospital Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(PAMTIP) W/COV	n = 1222						
INS95 (F = 16.84, P = .0001) RxCOV95 (ns) INS95*RxCOV95 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate Lower		CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	-0.0282	0.94	0.0465	-0.10	0.05	0.79	1.12
PRIVATE Rx Coverage	0.0006	1.00	0.0294	-0.05	0.05	0.90	1.12

Table D.3w 1995 Medical Provider Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(PAMTMP) W/COV	n = 6853						
INS95 (F = 49.57, P = .0001) RxCOV95 (ns) INS95*RxCOV95 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1877	1.54	0.0255	0.15	0.23	1.40	1.70
PRIVATE Rx Coverage	-0.0198	0.96	0.0159	-0.05	0.01	0.90	1.01

Table D.3x 1995 Outpatient Hospital Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(PAMTOP) W/COV	n = 4504						
INS95 (F = 2.68, P = .0452) RxCOV95 (ns) INS95*RxCOV95 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	-0.0171	0.96	0.0399	-0.08	0.05	0.83	1.12
PRIVATE Rx Coverage	0.0305	1.07	0.0240	-0.01	0.07	0.98	1.17

Table D.3y 1995 Prescription Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(PAMTPM) W/COV	n = 6237						
INS95 (F = 9.27, P = .0001) RxCOV95 (F = 59.75, P = .0001) INS95*RxCOV95 (ns)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0704	1.18	0.0268	0.03	0.11	1.06	1.30
PRIVATE Rx Coverage	0.1191	1.32	0.0162	0.09	0.15	1.24	1.40

Table D.3z 1995 Miscellaneous Expenditure, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(MISC95) W/COV	n = 249						
INS95 (F = 18.73, P = .0001) RxCOV95 (F = 4.34, P = .0385) INS95*RxCOV95 (F = 5.20, P = .0063)	Model Estimate Coefficient	Estimate Converted	SE of CI Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	-0.5647	0.27	0.0832	-0.70	-0.43	0.20	0.37
PRIVATE Rx Coverage	0.0022	1.01	0.0801	-0.13	0.13	0.74	1.36

Some tables are missing model coefficient estimates due to the algorithm's failure to converge. In these cases, convergence was possible only if various covariates were removed but model symmetry among the analyses would be lost. Since models in the two-stage analyses were not considered in this dissertation, further model revision was not pursued.

Table D.4a 1992 Total Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(TOTEXP) W/COV	n = 6720						
INS92 (F = 21.00, P = .0001) RXGEN92E (F = 29.77, P = .0001) INS92*RXGEN92E (F = 2.97, P = .0016)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1472	1.40	0.0434	0.08	0.22	1.19	1.65
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0918	1.24	0.0198	0.06	0.12	1.15	1.33
PRIVATEgenFAIR	0.1691	1.48	0.0193	0.14	0.20	1.37	1.59
PRIVATEgenGOOD	0.1744	1.49	0.0255	0.13	0.22	1.36	1.65

Table D.4b 1992 Inpatient Hospital Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(PAMTIP) W/COV	n = 1212						
INS92 (ns) RXGEN92E (ns) INS92*RXGEN92E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0648	1.16	0.0599	-0.03	0.16	0.93	1.46
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	-0.0339	0.92	0.0299	-0.08	0.02	0.83	1.04
PRIVATEgenFAIR	0.0549	1.13	0.0291	0.01	0.10	1.02	1.27
PRIVATEgenGOOD	0.0022	1.01	0.0401	-0.06	0.07	0.86	1.17

Table D.4c 1992 Medical Provider Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(PAMTMP) W/COV	n = 6571						
INS92 (F = 46.99, P = .0001) RXGEN92E (F = 6.00, P= .0004) INS92*RXGEN92E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1753	1.50	0.0428	0.10	0.25	1.27	1.76
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0534	1.13	0.0191	0.02	0.08	1.05	1.22
PRIVATEgenFAIR	0.0825	1.21	0.0185	0.05	0.11	1.13	1.30
PRIVATEgenGOOD	0.0454	1.11	0.0246	0.00	0.09	1.01	1.22

Table D.4d 1992 Outpatient Hospital Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(PAMTOP) W/COV	n = 4101						
INS92 (F = 5.96, P = .0005) RXGEN92E (ns) INS92*RXGEN92E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0307	1.07	0.0640	-0.07	0.14	0.84	1.37
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0493	1.12	0.0311	0.00	0.10	1.00	1.26
PRIVATEgenFAIR	0.0345	1.08	0.0301	-0.02	0.08	0.97	1.21
PRIVATEgenGOOD	0.1167	1.31	0.0400	0.05	0.18	1.12	1.52

Table D.4e 1992 Prescription Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(PAMTPM) W/COV	n = 6720						
INS92 (F = 27.77, P = .0001) RXGEN92E (F = 167.33, P = .0001) INS92*RXGEN92E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1523	1.42	0.0405	0.09	0.22	1.22	1.66
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.1944	1.56	0.0185	0.16	0.22	1.46	1.68
PRIVATEgenFAIR	0.3026	2.01	0.0180	0.27	0.33	1.87	2.15
PRIVATEgenGOOD	0.4065	2.55	0.0239	0.37	0.45	2.33	2.79

Table D.4f 1992 Miscellaneous Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(MISC92) W/COV	n = 141						
INS92 (ns) **RXGEN92E (F = 4.02, P = .0102)** INS92*RXGEN92E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

Table D.4g 1993 Total Health Care Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(TOTEXP) W/COV	n = 6426						
INS93 (F = 23.86, P = .0001) RXGEN92E (F = 21.07, P = .0001) INS92*RXGEN92E (F = 2.16, P = .0219)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0971	1.25	0.0369	0.04	0.16	1.09	1.44
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.1068	1.28	0.0203	0.07	0.14	1.18	1.38
PRIVATEgenFAIR	0.1376	1.37	0.0191	0.11	0.17	1.28	1.48
PRIVATEgenGOOD	0.1483	1.41	0.0258	0.11	0.19	1.28	1.55

Table D.4h 1993 Inpatient Hospital Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(PAMTIP) W/COV	n = 1185						
INS93 (F = 4.60, P = .0033) RXGEN93E (ns) INS93*RXGEN93E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0693	1.17	0.0583	-0.03	0.17	0.94	1.46
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	-0.0305	0.93	0.0358	-0.09	0.03	0.81	1.07
PRIVATEgenFAIR	0.0241	1.06	0.0340	-0.03	0.08	0.93	1.20
PRIVATEgenGOOD	0.0317	1.08	0.0473	-0.05	0.11	0.90	1.29

Table D.4i 1993 Medical Provider Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(PAMTMP) W/COV	n = 6333						
INS93 (F = 52.28, P = .0001) RXGEN92E (F = 3.52, P = .0145) INS93*RXGEN92E (F = 1.92, P = .0452)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1757	1.50	0.0372	0.11	0.24	1.30	1.73
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0443	1.11	0.0203	0.01	0.08	1.03	1.20
PRIVATEgenFAIR	0.0737	1.19	0.0190	0.04	0.11	1.10	1.27
PRIVATEgenGOOD	0.0382	1.09	0.0257	0.00	0.08	0.99	1.20

Table D.4j 1993 Outpatient Hospital Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(PAMTOP) W/COV	n = 4019						
INS93 (F = 3.92, P = .0083) RXGEN93E (ns) INS93*RXGEN93E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0473	1.12	0.0568	-0.05	0.14	0.90	1.38
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0715	1.18	0.0326	0.02	0.13	1.04	1.33
PRIVATEgenFAIR	0.0306	1.07	0.0306	-0.02	0.08	0.96	1.20
PRIVATEgenGOOD	0.0641	1.16	0.0425	-0.01	0.13	0.99	1.36

Table D.4k 1993 Prescription Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(PAMTPM) W/COV	n = 6426						
INS93 (F = 11.11, P = .0001) RXGEN93E (F = 163.08, P = .0001) INS93*RXGEN93E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0306	1.07	0.0354	-0.03	0.09	0.94	1.23
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.2079	1.61	0.0195	0.18	0.24	1.50	1.74
PRIVATEgenFAIR	0.2764	1.89	0.0184	0.25	0.31	1.76	2.03
PRIVATEgenGOOD	0.4208	2.63	0.0248	0.38	0.46	2.40	2.89

Table D.4m 1993 Miscellaneous Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(MISC93) W/COV	n = 120						
INS93 (ns) RXGEN93E (ns) INS93*RXGEN93E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

Table D.4n 1994 Total Health Care Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(TOTEXP) W/COV	n = 6535						
INS94 (F = 18.13, P = .0001) RXGEN94E (F = 24.56, P = .0001) INS94*RXGEN94E (F = 2.93, P = .0018)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0257	1.06	0.0374	-0.04	0.09	0.92	1.22
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0775	1.20	0.0209	0.04	0.11	1.10	1.29
PRIVATEgenFAIR	0.1235	1.33	0.0187	0.09	0.15	1.24	1.43
PRIVATEgenGOOD	0.1116	1.29	0.0239	0.07	0.15	1.18	1.42

Table D.4p 1994 Inpatient Hospital Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(PAMTIP) W/COV	n = 1219						
INS94 (F = 6.89, P = .0001) RXGEN94E (ns) **INS94*RXGEN94E (F = 3.22, P = .0007)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0494	1.12	0.0615	-0.05	0.15	0.89	1.41
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0399	1.10	0.0358	-0.02	0.10	0.96	1.26
PRIVATEgenFAIR	0.0140	1.03	0.0317	-0.04	0.07	0.92	1.16
PRIVATEgenGOOD	-0.0059	0.99	0.0440	-0.08	0.07	0.84	1.17

Table D.4q 1994 Medical ProviderExpenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(PAMTMP) W/COV	n = 6440						
INS94 (F = 42.06, P = .0001) RXGEN94E (F = 8.90, P = .0001) INS94*RXGEN94E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1575	1.44	0.0368	0.10	0.22	1.25	1.65
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0649	1.16	0.0206	0.03	0.10	1.07	1.26
PRIVATEgenFAIR	0.0784	1.20	0.0184	0.05	0.11	1.12	1.28
PRIVATEgenGOOD	0.0263	1.06	0.0236	-0.01	0.07	0.97	1.16

Table D.4r 1994 Outpatient Hospital Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(PAMTOP) W/COV	n = 4249						
INS94 (F = 6.42, P = .0002) RXGEN94E (ns) **INS94*RXGEN94E (F = 2.77, P = .0031)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	-0.0411	0.91	0.0623	-0.14	0.06	0.72	1.15
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0252	1.06	0.0328	-0.03	0.08	0.94	1.20
PRIVATEgenFAIR	0.0537	1.13	0.0294	0.01	0.10	1.01	1.26
PRIVATEgenGOOD	0.0276	1.07	0.0383	-0.04	0.09	0.92	1.23

Table D.4s 1994 Prescription Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(PAMTPM) W/COV	n = 6535						
INS94 (F = 8.12, P = .0001) RXGEN94E (F = 149.59, P = .0001) INS94*RXGEN94E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	-0.0074	0.98	0.0367	-0.07	0.05	0.86	1.13
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.1559	1.43	0.0205	0.12	0.19	1.32	1.55
PRIVATEgenFAIR	0.2215	1.67	0.0183	0.19	0.25	1.55	1.78
PRIVATEgenGOOD	0.3839	2.42	0.0235	0.35	0.42	2.21	2.65

Table D.4t 1994 Miscellaneous Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(MISC92) W/COV	n = 153						
INS94 (ns) RXGEN94E (ns) INS94*RXGEN94E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

Table D.4u 1995 Total Health Care Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(TOTEXP) W/COV	n = 6237						
INS95 (F = 24.57, P = .0001) RXGEN95E (F = 31.46, P = .0001) INS95*RXGEN95 (F = .0479, P = .0479)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0809	1.20	0.0382	0.02	0.14	1.04	1.39
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.1367	1.37	0.0229	0.10	0.17	1.26	1.49
PRIVATEgenFAIR	0.1277	1.34	0.0196	0.10	0.16	1.25	1.45
PRIVATEgenGOOD	0.1746	1.49	0.0241	0.13	0.21	1.36	1.64

Table D.4v 1995 Inpatient Hospital Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(PAMTIP) W/COV	n = 1178						
INS95 (F = 16.51, P = .0001) RXGEN95E (ns) **INS95*RXGEN95E (F = 2.74, P = .0036)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	-0.0477	0.90	0.0625	-0.15	0.06	0.71	1.14
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0116	1.03	0.0412	-0.06	0.08	0.88	1.20
PRIVATEgenFAIR	0.0179	1.04	0.0365	-0.04	0.08	0.91	1.20
PRIVATEgenGOOD	-0.0133	0.97	0.0471	-0.09	0.06	0.81	1.16

Table D.4w 1995 Medical ProviderExpenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(PAMTMP) W/COV	n = 6146						
INS95 (F = 47.84, P = .0001) RXGEN95E (F = 5.87, P = .0005) INS95*RXGEN95E (F = 2.35, P = .0122)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0926	1.24	0.0388	0.03	0.16	1.07	1.43
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0996	1.26	0.0229	0.06	0.14	1.15	1.37
PRIVATEgenFAIR	0.0580	1.14	0.0195	0.03	0.09	1.06	1.23
PRIVATEgenGOOD	0.0559	1.14	0.0239	0.02	0.10	1.04	1.25

Table D.4x 1995 Outpatient Hospital Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(PAMTOP) W/COV	n = 4196						
INS95 (F = 3.12, P = .0250) RXGEN95E (ns) INS95*RXGEN95E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0356	1.09	0.0578	-0.06	0.13	0.87	1.35
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0681	1.17	0.0348	0.01	0.13	1.03	1.33
PRIVATEgenFAIR	0.0841	1.21	0.0301	0.03	0.13	1.08	1.36
PRIVATEgenGOOD	0.0655	1.16	0.0366	0.01	0.13	1.01	1.34

Table D.4y 1995 Prescription Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(PAMTPM) W/COV	n = 6237						
INS95 (F = 10.02, P = .0001) **RXGEN95E (F = 187.80, P = .0001)** INS95*RXGEN95E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0643	1.16	0.0367	0.00	0.12	1.01	1.33
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.2089	1.62	0.0220	0.17	0.25	1.49	1.76
PRIVATEgenFAIR	0.2599	1.82	0.0188	0.23	0.29	1.69	1.95
PRIVATEgenGOOD	0.4547	2.85	0.0231	0.42	0.49	2.61	3.11

Table D.4z 1995 Miscellaneous Expenditure, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(MISC95) W/COV	n = 167						
INS95 (F = 10.02, P = .0001) **RXGEN95E (F = 187.80, P = .0001)** INS95*RXGEN95E (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted

Appendix D.5 Programming Example of Two-stage, 0/1 Expenditure is Dependent Variable, Rx Coverage is Predictor Variable

```
data master.de92rx_y;
       set master.de92rx_y;
format ins92;
run;
proc genmod data = master.de92rx_y;
 CLASS d_strat2  h_censu2
H_RACE2 H_SEX2 H_METRO2 spmarst2 ADL2 IADL2 chrdis92 genhelt2
INCOME2 ins92 rxrx92;
model ipexp92 =  d_strat2 h_censu2 H_RACE2
H_SEX2 H_METRO2 spmarst2 ADL2 IADL2 chrdis92 genhelt2 INCOME2
ins92 rxrx92 ins92*rxrx92 /   maxit= 100 dist = bin type1;

       ESTIMATE 'ins1-0 rx0'          rxrx92              -1 1
                                      ins92*rxrx92        -1
                                                           1 0
                                                           0 0
                                                           0 0 /E;

        ESTIMATE 'ins2-0 rx0'       rxrx92               -1 1
                                    ins92*rxrx92         -1
                                                          0 0
                                                          1 0
                                                          0 0/ exp;

         ESTIMATE 'ins3-0 rx0'      rxrx92               -1 1
                                    ins92*rxrx92         -1
                                                          0 0
                                                          0 0
                                                          1 0/exp;

         /*  ESTIMATE 'ins0 gen1-0'     rxrx92          -1 1
                                         ins92*rxrx92    -1
                                                          0 0
                                                          0 0
                                                          0 0 /exp; */
        ESTIMATE 'ins1-0 rx1'           rxrx92          -1 1
                                        ins92*rxrx92     0
                                                        -1 1
                                                         0 0
                                                         0 0 /exp;

        ESTIMATE 'ins2 rx1-0'          rxrx92          -1 1
                                       ins92*rxrx92     0
                                                        0 0
                                                       -1 1
                                                        0 0 / E exp;

        ESTIMATE 'ins3 rx1-0'          rxrx92          -1 1
                                       ins92*rxrx92     0
                                                        0 0
                                                        0 0
                                                       -1 1 exp;run;
```

Programming Example for SAS v8, Used to Get Standard Errors and Confidence Intervals for Within-Group Estimates for Rx Coverage Sample, Dependent Variable 0/1

```
data master.de92rx_y;
    set master.de92rx_y;
IF hpexp92 = 1 OR faexp92 = 1 OR iuexp92 = 1 THEN misexp92 = 1;
        ELSE misexp92 = 0;
        format   ins92;
run;
 data master.de92rx_y;
    set master.de92rx_y;
if (ins92 = 0 and rxrx92 = 0) then insrx92 = 0;
else if (ins92 = 1 and rxrx92 = 0) then insrx92 = 1;
else if (ins92 = 1 and rxrx92 = 1) then insrx92 = 2;
else if (ins92 = 2 and rxrx92 = 0) then insrx92 = 3;
else if (ins92 = 2 and rxrx92 = 1) then insrx92 = 4;
else if (ins92 = 3 and rxrx92 = 0) then insrx92 = 5;
else if (ins92 = 3 and rxrx92 = 1) then insrx92 = 6;
else insrx92 = .;
RUN;

proc genmod data = master.de92rx_y;
 CLASS d_strat2  h_censu2
H_RACE2 H_SEX2 H_METRO2 spmarst2 ADL2 IADL2 chrdis92 genhelt2
INCOME2     insrx92;
model ipexp92 =  d_strat2 h_censu2 H_RACE2
H_SEX2 H_METRO2 spmarst2 ADL2 IADL2 chrdis92 genhelt2 INCOME2
insrx92     / maxit= 100 dist = bin type1;

                                /*insrx92:      0  1  2  3  4  5  6
                                  ins92         0  1  1  2  2  3  3
                                  rxrx92        0  0  1  0  1  0  1  */

ESTIMATE 'ins1-0rx0'     insrx92               -1  1  0  0  0  0  0;
ESTIMATE 'ins2-0rx0'     insrx92               -1  0  0  1  0  0  0;
ESTIMATE 'ins3-0rx0'     insrx92               -1  0  0  0  0  1  0;

ESTIMATE 'rx1-0ins1'     insrx92                0 -1  1  0  0  0  0;
ESTIMATE 'rx1-0ins2'     insrx92                0  0  0 -1  1  0  0;
ESTIMATE 'rx1-0ins3'     insrx92                0  0  0  0  0 -1  1;
run;
```

Appendix D.6 Programming Example of Two-stage, 0/1 Expenditure is Dependent Variable, Rx Generosity is Predictor Variable

```
proc genmod data = master.de92rx_h;
CLASS d_strat2  h_censu2
H_RACE2 H_SEX2 H_METRO2 spmarst2 ADL2 IADL2 chrdis92 genhelt2 INCOME2
ins92 rxgen92e;
model ipexp92 =  d_strat2 h_censu2
H_RACE2 H_SEX2 H_METRO2 spmarst2 ADL2 IADL2 chrdis92 genhelt2 INCOME2
ins92 rxgen92e ins92*rxgen92e /
maxit= 100 dist = bin  type1;

     ESTIMATE 'ins1-0 gen0'        ins92              -1 1 0 0
                                   ins92*rxgen92e     -1 0 0 0
                                                       1 0 0 0
                                                       0 0 0 0
                                                       0 0 0 0/exp;

     ESTIMATE 'ins2-0 gen0'         ins92             -1 0 1 0
                                    ins92*rxgen92e    -1 0 0 0
                                                       0 0 0 0
                                                       1 0 0 0
                                                       0 0 0 0/exp;

     ESTIMATe 'ins3-0 gen0'          ins92            -1 0 0 1
                                     ins92*rxgen92e   -1 0 0 0
                                                       0 0 0 0
                                                       0 0 0 0
                                                       1 0 0 0/exp;

     ESTIMATE 'ins0 gen1-0'       rxgen92e            -1 1 0 0
                                  ins92*rxgen92e      -1 1 0 0
                                                       0 0 0 0
                                                       0 0 0 0
                                                       0 0 0 0/exp;

     ESTIMATE 'ins0 gen2-0'       rxgen92e            -1 0 1 0
                                  ins92*rxgen92e      -1 0 1 0
                                                       0 0 0 0
                                                       0 0 0 0
                                                       0 0 0 0/exp;

     ESTIMATE 'ins0 gen3-0'       rxgen92e            -1 0 0 1
                                  ins92*rxgen92e      -1 0 0 1
                                                       0 0 0 0
                                                       0 0 0 0
                                                       0 0 0 0/exp;

     ESTIMATE 'ins1 gen1-0'       rxgen92e            -1 1 0 0
                                  ins92*rxgen92e       0 0 0 0
                                                      -1 1 0 0
                                                       0 0 0 0
                                                       0 0 0 0/exp;

     ESTIMATE 'ins1 gen2-0'       rxgen92e            -1 0 1 0
                                  ins92*rxgen92e       0 0 0 0
                                                      -1 0 1 0
                                                       0 0 0 0
                                                       0 0 0 0/exp;
```

Appendix D.6 continued

```
      ESTIMATE 'ins1 gen3-0'      rxgen92e          -1 0 0 1
                                  ins92*rxgen92e     0 0 0 0
                                                    -1 0 0 1
                                                     0 0 0 0
                                                     0 0 0 0/exp;

      ESTIMATE 'ins2 gen1-0'      rxgen92e          -1 1 0 0
                                  ins92*rxgen92e     0 0 0 0
                                                     0 0 0 0
                                                    -1 1 0 0
                                                     0 0 0 0/exp;

      ESTIMATE 'ins2 gen2-0'      rxgen92e          -1 0 1 0
                                  ins92*rxgen92e     0 0 0 0
                                                     0 0 0 0
                                                    -1 0 1 0
                                                     0 0 0 0/exp;

      ESTIMATE 'ins2 gen3-0'      rxgen92e          -1 0 0 1
                                  ins92*rxgen92e     0 0 0 0
                                                     0 0 0 0
                                                    -1 0 0 1
                                                     0 0 0 0/exp;

     ESTIMATE 'ins3 gen1-0'       rxgen92e          -1 1 0 0
                                  ins92*rxgen92e     0 0 0 0
                                                     0 0 0 0
                                                     0 0 0 0
                                                    -1 1 0 0/exp;

     ESTIMATE 'ins3 gen2-0'       rxgen92e          -1 0 1 0
                                  ins92*rxgen92e     0 0 0 0
                                                     0 0 0 0
                                                     0 0 0 0
                                                    -1 0 1 0/exp;

     ESTIMATE 'ins3 gen3-0'       rxgen92e          -1 0 0 1
                                  ins92*rxgen92e     0 0 0 0
                                                     0 0 0 0
                                                     0 0 0 0
                                                    -1 0 0 1/exp;
run;
```

Appendix D.7 continued

Programming Example of Two-stage, Expenditure ($) is Dependent Variable, Rx Coverage is Predictor Variable

```
DATA TODAY;
        SET master.de92rx_y;
        WHERE  totexp92 gt 0;
        LGTOTEX2 = LOG10(TOTEXP92);
RUN;

PROC GLM DATA=TODAY ;
        TITLE 'ANOVA FOR UNBALANCED 1992 LOG(TOTEXP92) WITH COVARS';
        CLASS  D_STRAT2 H_RACE2 H_SEX2 H_CENSU2 H_METRO2  SPMARST2 ADL2
IADL2 chrdis92 GENHELT2 INCOME2 ins92 rxrx92 ;
        MODEL LGTOTEX2 =  D_STRAT2 H_RACE2 H_SEX2 H_CENSU2 H_METRO2
spmarst2 ADL2 IADL2 chrdis92   genhelt2 INCOME2 ins92 rxrx92
        ins92*rxrx92;
        format ins92;

        ESTIMATE 'ins1'              ins92              -1 1 0 0;
        ESTIMATE 'ins2'              ins92              -1 0 1 0;
        ESTIMATE 'ins3'              ins92              -1 0 0 1;
/*
        ESTIMATE 'ins0 rx1'         rxrx92           -1 1
                                     ins92*rxrx92     -1
                                                       0 0
                                                       0 0
                                                       0 0;

*/

        ESTIMATE 'ins1 rx1'         rxrx92           -1 1
                                     ins92*rxrx92      0
                                                      -1 1
                                                       0 0
                                                       0 0;


        ESTIMATE 'ins2 rx1'         rxrx92           -1 1
                                     ins92*rxrx92      0
                                                       0 0
                                                      -1 1
                                                       0 0 ;


        ESTIMATE 'ins3 rx1'         rxrx92           -1 1
                                     ins92*rxrx92      0
                                                       0 0
                                                       0 0
                                                      -1 1;


run;
```

Programming Example for SAS v8, Used to Get Standard Errors and Confidence Intervals for Within-Group Estimates for Rx Coverage Sample, Dependent Variable ($)

```
DATA TODAY;
        SET master.de92rx_y;
        WHERE  totexp92 gt 0;
        LGTOTEX2 = LOG10(TOTEXP92);
        RUN;

data today;
        SET TODAY;
        if (ins92 = 0 and rxrx92 = 0) then insrx92 = 0;
else if (ins92 = 1 and rxrx92 = 0) then insrx92 = 1;
else if (ins92 = 1 and rxrx92 = 1) then insrx92 = 2;
else if (ins92 = 2 and rxrx92 = 0) then insrx92 = 3;
else if (ins92 = 2 and rxrx92 = 1) then insrx92 = 4;
else if (ins92 = 3 and rxrx92 = 0) then insrx92 = 5;
else if (ins92 = 3 and rxrx92 = 1) then insrx92 = 6;
else insrx92 = .;
RUN;


PROC GLM DATA=TODAY ;
        TITLE 'ANOVA FOR UNBALANCED 1992 LOG(TOTEXP92) WITH COVARS';
        CLASS  D_STRAT2 H_RACE2 H_SEX2 H_CENSU2 H_METRO2  SPMARST2 ADL2
IADL2 chrdis92 GENHELT2 INCOME2 insrx92;
        MODEL LGTOTEX2 =  D_STRAT2 H_RACE2 H_SEX2 H_CENSU2 H_METRO2
spmarst2 ADL2 IADL2 chrdis92   genhelt2 INCOME2
       insrx92;

                              /* insrx92:          0  1  2  3  4  5  6

                                    ins92           0  1  1  2  2  3  3
                                   rxrx92           0  0  1  0  1  0  1  */


ESTIMATE 'ins1-0rx0'    insrx92              -1  1  0  0  0  0  0;
ESTIMATE 'ins2-0rx0'    insrx92              -1  0  0  1  0  0  0;
ESTIMATE 'ins3-0rx0'    insrx92              -1  0  0  0  0  1  0;

ESTIMATE 'rx1-0ins1'    insrx92               0 -1  1  0  0  0  0;
ESTIMATE 'rx1-0ins2'    insrx92               0  0  0 -1  1  0  0;
ESTIMATE 'rx1-0ins3'    insrx92               0  0  0  0  0 -1  1;


run;
```

Appendix D.8 Programming Example of Two-stage, Expenditure ($) is Dependent Variable, Rx Generosity is Predictor Variable

```
DATA TODAY;
        SET master.de92rx_h;
        WHERE  totexp92 gt 0;
        LGTOTEX2 = LOG10(TOTEXP92);
RUN;

proc freq data = today;
        tables ins92*rxgen92e;
run;

PROC GLM DATA=TODAY ;
        TITLE 'ANOVA FOR UNBALANCED 1992 LOG(TOTEXP92) WITH COVARS';
        CLASS  D_STRAT2 H_RACE2 H_SEX2 H_CENSU2 H_METRO2  SPMARST2 ADL2
IADL2 chrdis92 GENHELT2 INCOME2 ins92 rxgen92e ;
        MODEL LGTOTEX2 =  D_STRAT2 H_RACE2 H_SEX2 H_CENSU2 H_METRO2
spmarst2 ADL2 IADL2 chrdis92   genhelt2 INCOME2 ins92 rxgen92e
        ins92*rxgen92e;
        format ins92;

        ESTIMATE 'ins1'             ins92              -1 1 0 0;
        ESTIMATE 'ins2'             ins92              -1 0 1 0;
        ESTIMATE 'ins3'             ins92              -1 0 0 1;
/*remember to copy this
in procglm + 1 and in the codes for rx coverage analyses*/

        ESTIMATE 'ins0 gen1'        rxgen92e           -1 1 0 0
                                    ins92*rxgen92e     -1 1 0 0
                                                        0 0 0 0
                                                        0 0 0 0
                                                        0 0 0 0/E;

        ESTIMATE 'ins0 gen2'        rxgen92e           -1 0 1 0
                                    ins92*rxgen92e     -1 0 1 0
                                                        0 0 0 0
                                                        0 0 0 0
                                                        0 0 0 0;

        ESTIMATE 'ins0 gen3'        rxgen92e           -1 0 0 1
                                    ins92*rxgen92e     -1 0 0 1
                                                        0 0 0 0
                                                        0 0 0 0
                                                        0 0 0 0;

        ESTIMATE 'ins1 gen1'        rxgen92e           -1 1 0 0
                                    ins92*rxgen92e      0 0 0 0
                                                       -1 1 0 0
                                                        0 0 0 0
                                                        0 0 0 0;

        ESTIMATE 'ins1 gen2'        rxgen92e           -1 0 1 0
                                    ins92*rxgen92e      0 0 0 0
                                                       -1 0 1 0
                                                        0 0 0 0
                                                        0 0 0 0;

        ESTIMATE 'ins1 gen3'        rxgen92e           -1 0 0 1
                                    ins92*rxgen92e      0 0 0 0
                                                       -1 0 0 1
                                                        0 0 0 0
                                                        0 0 0 0;
```

Appendix D.8 continued

```
        ESTIMATE 'ins2 gen1'        rxgen92e          -1 1 0 0
                                    ins92*rxgen92e     0 0 0 0
                                                       0 0 0 0
                                                      -1 1 0 0
                                                       0 0 0 0;

        ESTIMATE 'ins2 gen2'        rxgen92e          -1 0 1 0
                                    ins92*rxgen92e     0 0 0 0
                                                       0 0 0 0
                                                      -1 0 1 0
                                                       0 0 0 0;

        ESTIMATE 'ins2 gen3'        rxgen92e          -1 0 0 1
                                    ins92*rxgen92e     0 0 0 0
                                                       0 0 0 0
                                                      -1 0 0 1
                                                       0 0 0 0;

        ESTIMATE 'ins3 gen1'        rxgen92e          -1 1 0 0
                                    ins92*rxgen92e     0 0 0 0
                                                       0 0 0 0
                                                       0 0 0 0
                                                      -1 1 0 0;

        ESTIMATE 'ins3 gen2'        rxgen92e          -1 0 1 0
                                    ins92*rxgen92e     0 0 0 0
                                                       0 0 0 0
                                                       0 0 0 0
                                                      -1 0 1 0;

        ESTIMATE 'ins3 gen3'        rxgen92e          -1 0 0 1
                                    ins92*rxgen92e     0 0 0 0
                                                       0 0 0 0
                                                       0 0 0 0
                                                      -1 0 0 1;
run;
```

Appendix D.9 Programming Example of One-Stage, Event (+ 0.5) is Dependent Variable, Rx Coverage is Predictor Variable

```
data master.de92rx_y;
        set master.de92rx_y;
format ins92;
run;

proc genmod data = master.de92rx_y;
 CLASS d_strat2  h_censu2
H_RACE2 H_SEX2 H_METRO2 spmarst2 ADL2 IADL2 chrdis92 genhelt2 INCOME2
ins92 rxrx92;
model ipaev92 =  d_strat2 h_censu2
H_RACE2 H_SEX2 H_METRO2 spmarst2 ADL2 IADL2 chrdis92 genhelt2 INCOME2
ins92 rxrx92 ins92*rxrx92 /
dscale
maxit= 100 dist = poisson link = log type1;


       ESTIMATE 'ins1-0 rx0'          rxrx92              -1 1
                                      ins92*rxrx92        -1
                                                           1 0
                                                           0 0
                                                           0 0 /E;

        ESTIMATE 'ins2-0 rx0'        rxrx92               -1 1
                                     ins92*rxrx92         -1
                                                           0 0
                                                           1 0
                                                           0 0/ exp;

         ESTIMATE 'ins3-0 rx0'       rxrx92               -1 1
                                     ins92*rxrx92         -1
                                                           0 0
                                                           0 0
                                                           1 0/exp;

        /*  ESTIMATE 'ins0 genl-0'     rxrx92            -1 1
                                       ins92*rxrx92      -1
                                                          0 0
                                                          0 0
                                                          0 0 /exp;      */

        ESTIMATE 'ins1-0 rx1'           rxrx92           -1 1
                                        ins92*rxrx92      0
                                                         -1 1
                                                          0 0
                                                          0 0 /exp;

        ESTIMATE 'ins2 rx1-0'          rxrx92           -1 1
                                       ins92*rxrx92      0
                                                         0 0
                                                        -1 1
                                                         0 0 / E exp;


        ESTIMATE 'ins3 rx1-0'          rxrx92           -1 1
                                       ins92*rxrx92      0
                                                         0 0
                                                         0 0
                                                        -1 1 /exp; run;
```

Programming Example for SAS v8, Used to Get Standard Errors and Confidence Intervals for Within-Group Estimates for Rx Coverage Sample, Dependent Variable Event (+ 0.5)

```
proc genmod data = master.de92rx_y;
 CLASS d_strat2  h_censu2
H_RACE2 H_SEX2 H_METRO2 spmarst2 ADL2 IADL2 chrdis92 genhelt2 INCOME2
insrx92;
model ipaev92 =  d_strat2 h_censu2
H_RACE2 H_SEX2 H_METRO2 spmarst2 ADL2 IADL2 chrdis92 genhelt2 INCOME2
insrx92     /
dscale
maxit= 100 dist = poisson link = log type1;

                          /* insrx92:       0  1  2  3  4  5  6

                             ins92         0  1  1  2  2  3  3
                             rxrx92        0  0  1  0  1  0  1  */

ESTIMATE 'ins1-0rx0'       insrx92       -1  1  0  0  0  0  0;
ESTIMATE 'ins2-0rx0'       insrx92       -1  0  0  1  0  0  0;
ESTIMATE 'ins3-0rx0'       insrx92       -1  0  0  0  0  1  0;

ESTIMATE 'rx1-0ins1'       insrx92        0 -1  1  0  0  0  0;
ESTIMATE 'rx1-0ins2'       insrx92        0  0  0 -1  1  0  0
ESTIMATE 'rx1-0ins3'       insrx92        0  0  0  0  0 -1  1;
run;
```

Appendix D.10 Programming Example of One-Stage, Event (+ 0.5) is Dependent Variable, Rx Generosity is Predictor Variable

```
data master.de92rx_h;
        set master.de92rx_h;
        ipaev92 = ipaevnts + 0.5;
        miscev92 = hpaevnts + iuaevnts + faaevnts + .5;
        mpaev92 = mpaevnts + 0.5;
        opaev92 = opaevnts + 0.5;
        pmaev92 = pmaevnts + 0.5;
Label ipaev92 = 'hosp event + .5';
Label mpaev92 = 'medprov. evt + .5';
Label opaev92 = 'outpt evt + .5';
Label pmaev92 = 'rx evt + .5';
Label miscev92 = 'misc events + .5';
format rxgen92e ins92;run;

proc genmod data = master.de92rx_h;
CLASS d_strat2  h_censu2
H_RACE2 H_SEX2 H_METRO2 spmarst2 ADL2 IADL2 chrdis92 genhelt2 INCOME2
ins92 rxgen92e;
model ipaev92 =  d_strat2 h_censu2
H_RACE2 H_SEX2 H_METRO2 spmarst2 ADL2 IADL2 chrdis92 genhelt2 INCOME2
ins92 rxgen92e ins92*rxgen92e /dscale
maxit= 100 dist = poisson link = log type1;
        ESTIMATE 'ins1-0 gen0'      ins92                -1 1 0 0
                                    ins92*rxgen92e       -1 0 0 0
                                                          1 0 0 0
                                                          0 0 0 0
                                                          0 0 0 0/exp;

        ESTIMATE 'ins2-0 gen0'       ins92               -1 0 1 0
                                     ins92*rxgen92e      -1 0 0 0
                                                          0 0 0 0
                                                          1 0 0 0
                                                          0 0 0 0/exp;

        ESTIMATe 'ins3-0 gen0'       ins92              -1 0 0 1
                                     ins92*rxgen92e     -1 0 0 0
                                                         0 0 0 0
                                                         0 0 0 0
                                                        1 0 0 0/exp;

        ESTIMATE 'ins0 gen1-0'      rxgen92e            -1 1 0 0
                                    ins92*rxgen92e      -1 1 0 0
                                                         0 0 0 0
                                                         0 0 0 0
                                                         0 0 0 0/exp;

        ESTIMATE 'ins0 gen2-0'      rxgen92e            -1 0 1 0
                                    ins92*rxgen92e      -1 0 1 0
                                                         0 0 0 0
                                                         0 0 0 0
                                                         0 0 0 0/exp;



       ESTIMATE 'ins0 gen3-0'       rxgen92e           -1 0 0 1
                                    ins92*rxgen92e      -1 0 0 1
                                                         0 0 0 0
                                                         0 0 0 0
                                                         0 0 0 0/exp;
```

Appendix D.10, continued

```
ESTIMATE 'ins1 gen1-0'    rxgen92e          -1 1 0 0
                          ins92*rxgen92e     0 0 0 0
                                            -1 1 0 0
                                             0 0 0 0
                                             0 0 0 0/exp;

ESTIMATE 'ins1 gen2-0'    rxgen92e          -1 0 1 0
                          ins92*rxgen92e     0 0 0 0
                                            -1 0 1 0
                                             0 0 0 0
                                             0 0 0 0/exp;

ESTIMATE 'ins1 gen3-0'    rxgen92e          -1 0 0 1
                          ins92*rxgen92e     0 0 0 0
                                            -1 0 0 1
                                             0 0 0 0
                                             0 0 0 0/exp;

ESTIMATE 'ins2 gen1-0'    rxgen92e          -1 1 0 0
                          ins92*rxgen92e     0 0 0 0
                                             0 0 0 0
                                            -1 1 0 0
                                             0 0 0 0/exp;

ESTIMATE 'ins2 gen2-0'    rxgen92e          -1 0 1 0
                          ins92*rxgen92e     0 0 0 0
                                             0 0 0 0
                                            -1 0 1 0
                                             0 0 0 0/exp;

ESTIMATE 'ins2 gen3-0'    rxgen92e          -1 0 0 1
                          ins92*rxgen92e     0 0 0 0
                                             0 0 0 0
                                            -1 0 0 1
                                             0 0 0 0/exp;

ESTIMATE 'ins3 gen1-0'    rxgen92e          -1 1 0 0
                          ins92*rxgen92e     0 0 0 0
                                             0 0 0 0
                                             0 0 0 0
                                            -1 1 0 0/exp;

ESTIMATE 'ins3 gen2-0'    rxgen92e          -1 0 1 0
                          ins92*rxgen92e     0 0 0 0
                                             0 0 0 0
                                             0 0 0 0
                                            -1 0 1 0/exp;

ESTIMATE 'ins3 gen3-0'    rxgen92e          -1 0 0 1
                          ins92*rxgen92e     0 0 0 0
                                             0 0 0 0
                                             0 0 0 0
                                            -1 0 0 1/exp; run;
```

Appendix D.11 Programming Example of One-Stage, Expenditure (+ $1) is Dependent Variable,
Rx Coverage is Predictor Variable

```
PROC GLM DATA= master.de92rx_y ;
        TITLE 'ANOVA FOR UNBALANCED 1992 LOG(ip_1) WITH COVARS';
        CLASS  D_STRAT2 H_RACE2 H_SEX2 H_CENSU2 H_METRO2  SPMARST2 ADL2
IADL2 chrdis92 GENHELT2 INCOME2 ins92 rxrx92 ;
        MODEL LGip_1 =  D_STRAT2 H_RACE2 H_SEX2 H_CENSU2 H_METRO2 spmarst2
ADL2 IADL2 chrdis92   genhelt2 INCOME2 ins92 rxrx92
        ins92*rxrx92;
        format ins92;

        ESTIMATE 'ins1'                 ins92      -1 1 0 0 ;
        ESTIMATE 'ins2'                 ins92      -1 0 1 0 ;
        ESTIMATE 'ins3'                 ins92      -1 0 0 1;

/*
        ESTIMATE 'ins0 rx1'          rxrx92           -1 1
                                      ins92*rxrx92    -1
                                                       0 0
                                                       0 0
                                                       0 0;

*/
        ESTIMATE 'ins1 rx1'          rxrx92           -1 1
                                      ins92*rxrx92     0
                                                      -1 1
                                                       0 0
                                                       0 0;

        ESTIMATE 'ins2 rx1'          rxrx92           -1 1
                                      ins92*rxrx92     0
                                                       0 0
                                                      -1 1
                                                       0 0 ;

        ESTIMATE 'ins3 rx1'          rxrx92           -1 1
                                      ins92*rxrx92     0
                                                       0 0
                                                       0 0
                                                      -1 1;
run;
```

Appendix D.11 continued

Programming Example for SAS v8, Used to Get Standard Errors and Confidence Intervals for Within-Group Estimates for Rx Coverage Sample, Dependent Variable Expenditure (+ $1)

```
PROC GLM DATA= master.de92rx_y ;
       TITLE 'ANOVA FOR UNBALANCED 1992 LOG(ip_1) WITH COVARS';
       CLASS  D_STRAT2 H_RACE2 H_SEX2 H_CENSU2 H_METRO2  SPMARST2 ADL2
IADL2 chrdis92 GENHELT2 INCOME2 insrx92 ;
      MODEL LGip_1 =  D_STRAT2 H_RACE2 H_SEX2 H_CENSU2 H_METRO2 spmarst2
ADL2 IADL2 chrdis92   genhelt2 INCOME2
insrx92;

                              /* insrx92:      0  1  2  3  4  5  6
                                 ins92         0  1  1  2  2  3  3
                                 rxrx92        0  0  1  0  1  0  1  */

ESTIMATE 'ins1-0rx0'   insrx92              -1  1  0  0  0  0  0;
ESTIMATE 'ins2-0rx0'   insrx92              -1  0  0  1  0  0  0;
ESTIMATE 'ins3-0rx0'   insrx92              -1  0  0  0  0  1  0;

ESTIMATE 'rx1-0ins1'   insrx92               0 -1  1  0  0  0  0;
ESTIMATE 'rx1-0ins2'   insrx92               0  0  0 -1  1  0  0;
ESTIMATE 'rx1-0ins3'   insrx92               0  0  0  0  0 -1  1;
run;
```

Appendix D.12 Programming Example of One-Stage, Expenditure (+ $1) is Dependent Variable, Rx Generosity is Predictor Variable

```
DATA master.de92rx_g;
        SET master.de92rx_g;
        ip_1 = pamtip + 1;
        op_1 = pamtop + 1;
        mp_1 = pamtmp + 1;
        pm_1 = pamtpm + 1;
        misc_1 = misc92 + 1;
        tot_1 = pamttot + 1;

        LGip_1 = LOG10(ip_1);
        LGop_1 = LOG10(op_1);
        LGmp_1 = LOG10(mp_1);
        LGpm_1 = LOG10(pm_1);
        LGmis_1 = LOG10(misc_1);
        LGtot_1 = LOG10(tot_1);

LABEL lgip_1 = 'log10 of ip +1';
LABEL lgop_1 = 'log10 of op +1';
LABEL lgmp_1 = 'log10 of mp$ +1';
LABEL lgmis_1 = 'log10 of misc +1';
LABEL lgpm_1 = 'log10 of pm +1';
LABEL lgtot_1 = 'log10 of tot$ +1';
RUN;
PROC GLM DATA= master.de92rx_g ;
        TITLE 'ANOVA FOR UNBALANCED 1992 LOG(ip_1) WITH COVARS';
        CLASS  D_STRAT2 H_RACE2 H_SEX2 H_CENSU2 H_METRO2  SPMARST2 ADL2
IADL2 chrdis92 GENHELT2 INCOME2 ins92 rxgen92e ;
        MODEL LGtot_1 =  D_STRAT2 H_RACE2 H_SEX2 H_CENSU2 H_METRO2
spmarst2 ADL2 IADL2 chrdis92   genhelt2 INCOME2 ins92 rxgen92e
        ins92*rxgen92e;
        format ins92;
  ESTIMATE 'ins1-0 gen0'        ins92              -1 1 0 0
                                ins92*rxgen92e     -1 0 0 0
                                                    1 0 0 0
                                                    0 0 0 0
                                                    0 0 0 0/E;

        ESTIMATE 'ins2-0 gen0'          ins92              -1 0 1 0
                                        ins92*rxgen92e     -1 0 0 0
                                                            0 0 0 0
                                                            1 0 0 0
                                                            0 0 0 0/E;

        ESTIMATe 'ins3-0 gen0'           ins92             -1 0 0 1
                                         ins92*rxgen92e    -1 0 0 0
                                                            0 0 0 0
                                                            0 0 0 0
                                                            1 0 0 0/E;

        ESTIMATE 'ins0 gen1-0'        rxgen92e             -1 1 0 0
                                      ins92*rxgen92e       -1 1 0 0
                                                            0 0 0 0
                                                            0 0 0 0
                                                            0 0 0 0/E;

        ESTIMATE 'ins0 gen2-0'        rxgen92e             -1 0 1 0
                                      ins92*rxgen92e       -1 0 1 0
                                                            0 0 0 0
                                                            0 0 0 0
                                                            0 0 0 0/E;
```

```
ESTIMATE 'ins0 gen3-0'      rxgen92e          -1 0 0 1
                            ins92*rxgen92e    -1 0 0 1
                                               0 0 0 0
                                               0 0 0 0
                                               0 0 0 0/E;

ESTIMATE 'ins1 gen1-0'      rxgen92e          -1 1 0 0
                            ins92*rxgen92e     0 0 0 0
                                              -1 1 0 0
                                               0 0 0 0
                                               0 0 0 0/E;

ESTIMATE 'ins1 gen2-0'      rxgen92e          -1 0 1 0
                            ins92*rxgen92e     0 0 0 0
                                              -1 0 1 0
                                               0 0 0 0
                                               0 0 0 0/E;

ESTIMATE 'ins1 gen3-0'      rxgen92e          -1 0 0 1
                            ins92*rxgen92e     0 0 0 0
                                              -1 0 0 1
                                               0 0 0 0
                                               0 0 0 0/E;


ESTIMATE 'ins2 gen1-0'      rxgen92e          -1 1 0 0
                            ins92*rxgen92e     0 0 0 0
                                               0 0 0 0
                                              -1 1 0 0
                                               0 0 0 0/E;

ESTIMATE 'ins2 gen2-0'      rxgen92e          -1 0 1 0
                            ins92*rxgen92e     0 0 0 0
                                               0 0 0 0
                                              -1 0 1 0
                                               0 0 0 0/E;

ESTIMATE 'ins2 gen3-0'      rxgen92e          -1 0 0 1
                            ins92*rxgen92e     0 0 0 0
                                               0 0 0 0
                                              -1 0 0 1
                                               0 0 0 0/E;


ESTIMATE 'ins3 gen1-0'      rxgen92e          -1 1 0 0
                            ins92*rxgen92e     0 0 0 0
                                               0 0 0 0
                                               0 0 0 0
                                              -1 1 0 0/E;

ESTIMATE 'ins3 gen2-0'      rxgen92e          -1 0 1 0
                            ins92*rxgen92e     0 0 0 0
                                               0 0 0 0
                                               0 0 0 0
                                              -1 0 1 0/E;

ESTIMATE 'ins3 gen3-0'      rxgen92e          -1 0 0 1
                            ins92*rxgen92e     0 0 0 0
                                               0 0 0 0
                                               0 0 0 0
                                              -1 0 0 1/E;
```

Appendix E

Appendix E.1

Predictor Variables
ins = insurance group
rx = prescription coverage
ins*rx = insurance*prescription coverage interaction

Table E.1a Significant Predictor Variables in Events + 0.5 Rx Coverage Models, By Year and Category

Year		Inpatient	Medical Provider	Outpatient	Rx	Miscellaneous
1992			ins	ins, ins*rx	ins, rx, ins*rx	ins, rx, ins*rx
1993		ins	ins, ins*rx	ins, ins*rx	ins, rx, ins*rx	ins, ins*rx
1994		ins	ins	ins, rx	ins, rx, ins*rx	ins, ins*rx
1995		ins	ins, rx, ins*rx	ins, ins*rx	ins, rx, ins*rx	ins, ins*rx

Table E.1b Significant Predictor Variables in Expenditure + $1 Rx Coverage Models, By Year and Category

Year	Total	Inpatient	Medical Provider	Outpatient	Rx	Miscellaneous
1992	ins		ins	ins	ins, rx, ins*rx	ins
1993	ins, rx	ins, ins*rx	ins, ins*rx	ins	ins, rx	ins, ins*rx
1994	ins, rx, ins*rx	ins, ins*rx	ins	ins	ins, rx	ins, ins*rx
1995	ins, ins*rx	ins	ins	ins	ins, rx	ins, rx, ins*rx

Table E.2a 1992 Inpatient Hospital Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1992 (IPAEV + .5) W/COV	n = 7659						
INS92 (ns) RxCOV92 (ns) INS92*RxCOV92 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	0.0795	1.08	0.04	0.01	0.15	1.01	1.16
PRIVATE	0.0729	1.08	0.03	0.03	0.12	1.03	1.12
PRIVATE + HMO	-0.0085	0.99	0.09	-0.16	0.14	0.86	1.15
MEDICARE HMO Rx Coverage	-0.0370	0.96	0.05	-0.12	0.05	0.89	1.05
PRIVATE Rx Coverage	-0.0347	0.97	0.02	-0.06	0.00	0.94	1.00
PRIVATE + HMO Rx Coverage	0.0917	1.10	0.10	-0.08	0.26	0.93	1.30

Table E.2b 1992 Medical Provider Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1992 (MPAEV + .5) W/COV	n = 7659						
INS92 (C.S. 174.55, P = .0001) RxCOV92 (ns) INS92*RxCOV92 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	-0.0295	0.97	0.06	-0.13	0.07	0.87	1.08
PRIVATE	0.3071	1.36	0.04	0.25	0.37	1.28	1.44
PRIVATE + HMO	0.2220	1.25	0.11	0.04	0.40	1.04	1.50
MEDICARE HMO Rx Coverage	-0.1221	0.89	0.07	-0.24	0.00	0.78	1.00
PRIVATE Rx Coverage	-0.0262	0.97	0.02	-0.06	0.01	0.94	1.01
PRIVATE + HMO Rx Coverage	0.0820	1.09	0.12	-0.12	0.29	0.89	1.33

Table E.2c 1992 Outpatient Hospital Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1992 (OPAEV + .5) W/COV	n = 7659						
INS92 (C.S. 25.79, P = .0001) RxCOV92 (ns) **INS92*RxCOV92 (C.S. 18.93, P = .0001)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	0.1833	1.20	0.08	0.05	0.32	1.05	1.37
PRIVATE	0.1677	1.18	0.05	0.09	0.25	1.09	1.28
PRIVATE + HMO	0.8036	2.23	0.12	0.61	1.00	1.84	2.71
MEDICARE HMO Rx Coverage	-0.1102	0.90	0.09	-0.26	0.04	0.77	1.04
PRIVATE Rx Coverage	0.0192	1.02	0.03	-0.03	0.07	0.97	1.07
PRIVATE + HMO Rx Coverage	-0.6096	0.54	0.14	-0.84	-0.37	0.43	0.69

Table E.2d 1992 Prescription Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1992 (PMAEV + .5) W/COV	n = 7659						
INS92 (C.S. 89.22, P = .0001) RxCOV92 (C.S. 9.36, P = .0022) INS92*RxCOV92 (C.S. 14.08, P = .0009)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	0.1743	1.19	0.06	0.07	0.28	1.07	1.32
PRIVATE	0.3125	1.37	0.04	0.25	0.37	1.29	1.45
PRIVATE + HMO	0.4093	1.51	0.11	0.22	0.60	1.25	1.81
MEDICARE HMO Rx Coverage	0.2993	1.35	0.07	0.19	0.41	1.21	1.51
PRIVATE Rx Coverage	0.0412	1.04	0.02	0.00	0.08	1.00	1.08
PRIVATE + HMO Rx Coverage	-0.0272	0.97	0.13	-0.24	0.18	0.79	1.20

Table E.2e 1992 Miscellaneous Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1992 (MISCEV + .5) W/COV	n = 7659						
INS92 (C.S. 86.92, P = .0001) RxCOV92 (C.S. 23.17, P = .0001) INS92*RxCOV92 (C.S. 8.97, P = .0113)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	-0.0347	0.97	0.02	-0.07	0.00	0.93	1.00
PRIVATE	-0.1095	0.90	0.01	-0.13	-0.09	0.88	0.92
PRIVATE + HMO	-0.1397	0.87	0.05	-0.22	-0.06	0.81	0.94
MEDICARE HMO Rx Coverage	-0.1171	0.89	0.03	-0.16	-0.07	0.85	0.93
PRIVATE Rx Coverage	-0.0354	0.97	0.01	-0.05	-0.02	0.95	0.98
PRIVATE + HMO Rx Coverage	-0.0096	0.99	0.05	-0.10	0.08	0.91	1.08

Table E.2f 1993 Inpatient Hospital Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1993 (IPAEV + .5) W/COV	n = 7539						
INS93 (C.S. 16.84, P = .0008) RxCOV93 (ns) INS93*RxCOV93 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	0.0803	1.08	0.05	0.00	0.16	1.00	1.17
PRIVATE	0.0945	1.10	0.03	0.05	0.14	1.05	1.15
PRIVATE + HMO	0.1502	1.16	0.09	-0.01	0.31	0.99	1.36
MEDICARE HMO Rx Coverage	0.0303	1.03	0.05	-0.05	0.11	0.95	1.12
PRIVATE Rx Coverage	0.0166	1.02	0.02	-0.01	0.05	0.99	1.05
PRIVATE + HMO Rx Coverage	0.0370	1.04	0.10	-0.14	0.21	0.87	1.23

Table E.2g 1993 Medical Provider Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1993 (MPAEV + .5) W/COV	n = 7539						
INS93 (C.S. 218.52, P = .0001) RxCOV93 (ns) **INS93*RxCOV93 (C.S. 8.55, P = .0139)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	0.0338	1.03	0.06	-0.07	0.14	0.93	1.15
PRIVATE	0.3367	1.40	0.04	0.28	0.40	1.32	1.49
PRIVATE + HMO	0.2701	1.31	0.12	0.08	0.46	1.08	1.59
MEDICARE HMO Rx Coverage	-0.1819	0.83	0.07	-0.30	-0.06	0.74	0.94
PRIVATE Rx Coverage	0.0363	1.04	0.02	0.00	0.07	1.00	1.07
PRIVATE + HMO Rx Coverage	0.0287	1.03	0.13	-0.18	0.24	0.83	1.27

Table E.2h 1993 Outpatient Hospital Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1993 (OPAEV + .5) W/COV	n = 7539						
INS93 (C.S. 33.66, P = .0001) RxCOV93 (ns) INS93*RxCOV93 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	0.0635	1.07	0.09	-0.08	0.20	0.93	1.23
PRIVATE	0.1901	1.21	0.05	0.11	0.27	1.11	1.32
PRIVATE + HMO	-0.0673	0.93	0.18	-0.36	0.22	0.70	1.25
MEDICARE HMO Rx Coverage	-0.0908	0.91	0.09	-0.24	0.06	0.78	1.06
PRIVATE Rx Coverage	0.0174	1.02	0.03	-0.03	0.07	0.97	1.07
PRIVATE + HMO Rx Coverage	0.0367	1.04	0.20	-0.29	0.36	0.75	1.43

Table E.2i 1993 Prescription Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1993 (PMAEV + .5) W/COV	n =7539						
INS93 (C.S. 62.74, P = .0001) **RxCOV93 (C.S. 34.61, P = .0001)** **INS93*RxCOV93 (C.S. 10.77, P = .0046)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	0.0542	1.06	0.07	-0.05	0.16	0.95	1.18
PRIVATE	0.2333	1.26	0.04	0.17	0.30	1.19	1.34
PRIVATE + HMO	0.1886	1.21	0.12	-0.01	0.39	0.99	1.48
MEDICARE HMO Rx Coverage	0.3221	1.38	0.07	0.21	0.43	1.23	1.54
PRIVATE Rx Coverage	0.0994	1.10	0.02	0.06	0.14	1.06	1.15
PRIVATE + HMO Rx Coverage	0.2426	1.27	0.13	0.02	0.46	1.03	1.58

Table E.2j 1993 Miscellaneous Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1993 (MISCEV + .5) W/COV	n = 7539						
INS93 (C.S. 237.19, P = .0001) RxCOV93 (ns) **INS93*RxCOV93 (C.S. 35.26, P = .0001)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	0.0124	1.01	0.02	-0.02	0.05	0.98	1.05
PRIVATE	-0.1867	0.83	0.01	-0.21	-0.16	0.81	0.85
PRIVATE + HMO	-0.1709	0.84	0.05	-0.25	-0.09	0.78	0.91
MEDICARE HMO Rx Coverage	-0.1317	0.88	0.02	-0.17	-0.09	0.84	0.91
PRIVATE Rx Coverage	0.0177	1.02	0.01	0.00	0.03	1.00	1.03
PRIVATE + HMO Rx Coverage	0.0437	1.04	0.05	-0.04	0.13	0.96	1.14

Table E.2k 1994 Inpatient Hospital Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1994 (IPAEV + .5) W/COV	n = 7685						
INS94 (C.S. 22.37, P = .0001) RxCOV94 (ns) INS94*RxCOV94 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	0.0158	1.02	0.05	-0.06	0.10	0.94	1.10
PRIVATE	0.1167	1.12	0.03	0.07	0.16	1.07	1.18
PRIVATE + HMO	0.2627	1.30	0.09	0.12	0.40	1.13	1.50
MEDICARE HMO Rx Coverage	0.0794	1.08	0.05	0.00	0.16	1.00	1.18
PRIVATE Rx Coverage	0.0075	1.01	0.02	-0.02	0.04	0.98	1.04
PRIVATE + HMO Rx Coverage	-0.1739	0.84	0.09	-0.33	-0.02	0.72	0.98

Table E.2m 1994 Medical Provider Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1994 (MPAEV + .5) W/COV	n = 7685						
INS94 (C.S. 303.58, P = .0001) RxCOV94 (ns) INS94*RxCOV94 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	-0.0977	0.91	0.07	-0.21	0.01	0.81	1.01
PRIVATE	0.3388	1.40	0.04	0.28	0.40	1.32	1.49
PRIVATE + HMO	0.2877	1.33	0.11	0.10	0.47	1.11	1.61
MEDICARE HMO Rx Coverage	-0.1430	0.87	0.07	-0.26	-0.02	0.77	0.98
PRIVATE Rx Coverage	0.0199	1.02	0.02	-0.02	0.06	0.98	1.06
PRIVATE + HMO Rx Coverage	-0.1167	0.89	0.12	-0.32	0.08	0.73	1.09

Table E.2n 1994 Outpatient Hospital Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1994 (OPAEV + .5) W/COV	n = 7685	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
INS94 (C.S. 24.93, P = .0001) **RxCOV94 (C.S. 8.99, P = .0027)** INS94*RxCOV94 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	-0.1617	0.85	0.09	-0.31	-0.02	0.74	0.98
PRIVATE	0.0617	1.06	0.05	-0.02	0.14	0.98	1.15
PRIVATE + HMO	0.1748	1.19	0.15	-0.07	0.42	0.93	1.52
MEDICARE HMO Rx Coverage	0.0909	1.10	0.09	-0.06	0.24	0.94	1.28
PRIVATE Rx Coverage	0.0894	1.09	0.03	0.04	0.14	1.04	1.15
PRIVATE + HMO Rx Coverage	0.0007	1.00	0.16	-0.26	0.26	0.77	1.30

Table E.2p 1994 Prescription Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1994 (PMAEV + .5) W/COV	n = 7685	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
INS94 (C.S. 66.03, P = .0001) **RxCOV94 (C.S. 14.48, P = .0001)** **INS94*RxCOV94 (C.S. 7.68, P = .0215)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	0.1822	1.20	0.06	0.08	0.29	1.08	1.33
PRIVATE	0.2553	1.29	0.04	0.19	0.32	1.21	1.37
PRIVATE + HMO	0.0187	1.02	0.13	-0.20	0.24	0.82	1.27
MEDICARE HMO Rx Coverage	0.1374	1.15	0.06	0.03	0.24	1.03	1.27
PRIVATE Rx Coverage	0.0647	1.07	0.02	0.03	0.10	1.03	1.11
PRIVATE + HMO Rx Coverage	0.4227	1.53	0.14	0.19	0.65	1.21	1.92

Table E.2q 1994 Miscellaneous Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1994 (MISCEV + .5) W/COV	n = 7685						
INS94 (C.S. 141.28, P = .0001) RxCOV94 (ns) **INS94*RxCOV94 (C.S. 11.67, P = .0029)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	-0.0278	0.97	0.02	-0.07	0.01	0.94	1.01
PRIVATE	-0.1563	0.86	0.01	-0.18	-0.13	0.84	0.88
PRIVATE + HMO	-0.1406	0.87	0.05	-0.22	-0.06	0.80	0.94
MEDICARE HMO Rx Coverage	-0.0851	0.92	0.03	-0.13	-0.04	0.88	0.96
PRIVATE Rx Coverage	0.0066	1.01	0.01	-0.01	0.02	0.99	1.02
PRIVATE + HMO Rx Coverage	0.0031	1.00	0.05	-0.08	0.09	0.92	1.09

Table E.2r 1995 Inpatient Hospital Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1995 (IPAEV + .5) W/COV	n = 7206						
INS95 (C.S. 9.41, P = .0243) RxCOV95 (ns) INS95*RxCOV95 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	-0.0089	0.99	0.06	-0.11	0.10	0.89	1.10
PRIVATE	0.0932	1.10	0.03	0.04	0.14	1.05	1.15
PRIVATE + HMO	0.1908	1.21	0.11	0.01	0.38	1.01	1.46
MEDICARE HMO Rx Coverage	0.0555	1.06	0.06	-0.05	0.16	0.95	1.17
PRIVATE Rx Coverage	-0.0351	0.97	0.02	-0.07	0.00	0.94	1.00
PRIVATE + HMO Rx Coverage	-0.1834	0.83	0.12	-0.37	0.01	0.69	1.01

Table E.2s 1995 Medical Provider Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1995 (MPAEV + .5) W/COV	n = 7206						
INS95 (C.S. 251.86, P = .0001) RxCOV95 (C.S. 6.37, P = .0116) INS95*RxCOV95 (C.S. 14.95, P = .0019)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	-0.1656	0.85	0.09	-0.31	-0.02	0.73	0.98
PRIVATE	0.2702	1.31	0.04	0.21	0.33	1.23	1.39
PRIVATE + HMO	0.3775	1.46	0.13	0.16	0.60	1.17	1.82
MEDICARE HMO Rx Coverage	-0.1355	0.87	0.09	-0.29	0.01	0.75	1.01
PRIVATE Rx Coverage	-0.0398	0.96	0.02	-0.08	0.00	0.93	1.00
PRIVATE + HMO Rx Coverage	-0.4475	0.64	0.14	-0.68	-0.22	0.51	0.80

Table E.2t 1995 Outpatient Hospital Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1995 (OPAEV + .5) W/COV	n = 7206						
INS95 (C.S. 61.58, P = .0001) RxCOV95 (ns) **INS95*RxCOV95 (C.S. 12.50, P = .0059)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	0.0256	1.03	0.11	-0.15	0.20	0.86	1.23
PRIVATE	0.1722	1.19	0.05	0.09	0.25	1.09	1.29
PRIVATE + HMO	0.5242	1.69	0.17	0.24	0.81	1.27	2.24
MEDICARE HMO Rx Coverage	-0.2329	0.79	0.11	-0.42	-0.05	0.66	0.95
PRIVATE Rx Coverage	0.0104	1.01	0.03	-0.04	0.06	0.96	1.06
PRIVATE + HMO Rx Coverage	-0.4405	0.64	0.18	-0.73	-0.15	0.48	0.86

Table E.2u 1995 Prescription Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1995 (PMAEV + .5) W/COV	n = 7206						
INS95 (C.S. 66.16, P = .0001) **RxCOV95 (C.S. 14.80, P = .0001)** **INS95*RxCOV95 (C.S. 20.94, P = .0001)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	-0.0133	0.99	0.09	-0.16	0.13	0.85	1.14
PRIVATE	0.2592	1.30	0.04	0.19	0.33	1.21	1.39
PRIVATE + HMO	0.3064	1.36	0.15	0.06	0.55	1.06	1.74
MEDICARE HMO Rx Coverage	0.3900	1.48	0.09	0.25	0.53	1.28	1.71
PRIVATE Rx Coverage	0.0671	1.07	0.02	0.03	0.11	1.03	1.11
PRIVATE + HMO Rx Coverage	0.0832	1.09	0.15	-0.17	0.33	0.85	1.40

Table E.2v 1995 Miscellaenous Events + 0.5 (Poisson), Rx Coverage as Predictor Variable

GENERAL LINEAR MODEL FOR 1995 (MISCEV + .5) W/COV	n = 7206						
INS95 (C.S. 107.68, P = .0001) RxCOV95 (ns) **INS95*RxCOV95 (C.S. 47.81, P = .0001)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE	0.0000	1.00					
MEDICARE HMO	0.0090	1.01	0.03	-0.04	0.06	0.96	1.06
PRIVATE	-0.1514	0.86	0.02	-0.18	-0.13	0.84	0.88
PRIVATE + HMO	0.2450	1.28	0.06	0.15	0.34	1.16	1.40
MEDICARE HMO Rx Coverage	-0.1128	0.89	0.03	-0.17	-0.06	0.85	0.94
PRIVATE Rx Coverage	0.0063	1.01	0.01	-0.01	0.02	0.99	1.02
PRIVATE + HMO Rx Coverage	-0.3748	0.69	0.06	-0.47	-0.28	0.62	0.76

Table E.3a 1992 Inpatient Hospital Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(ip_1) W/COV	n = 7659						
INS92 (ns) RXCOV92 (ns) INS92*RXCOV92 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.1071	1.28	0.0539	0.02	0.20	1.04	1.57
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	-0.0348	0.92	0.04	-0.10	0.03	0.80	1.06

Table E.3b 1992 Medical ProviderExpenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(mp_1) W/COV	n = 7659						
INS92 (F = 62.65, P = .0001) RXCOV92 (ns) INS92*RXCOV92 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.3866	2.44	0.0323	0.33	0.44	2.16	2.75
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	0.0205	1.05	0.02	-0.02	0.06	0.96	1.14

Table E.3c 1992 Outpatient Hospital Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(op_1) W/COV	n = 7659						
INS92 (F = 11.75, P = .0001) RXCOV92 (ns) INS92*RXCOV92 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.2769	1.89	0.0494	0.20	0.36	1.57	2.28
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	0.0043	1.01	0.03	-0.05	0.06	0.89	1.15

Table E.3d 1992 Prescription Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(pm_1) W/COV	n = 7659						
INS92 (F = 75.73, P = .0001) **RXCOV92 (F = 15.72, P = .0001)** INS92*RXCOV92 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.4857	3.06	0.0353	0.43	0.54	2.68	3.50
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	0.0864	1.22	0.02	0.05	0.13	1.11	1.34

Table E.3e 1992 Miscellaneous Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(mis_1) W/COV	n = 7659						
INS92 (F = 74.04, P = .0001) **RXCOV92 (F = 6.69, P = .0097)** INS92*RXCOV92 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	-0.3379	0.46	0.0240	-0.38	-0.30	0.42	0.50
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	-0.0281	0.94	0.02	-0.06	0.00	0.88	1.00

Table E.3f 1993 Inpatient Hospital Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(ip_1) W/COV	n = 7539						
INS93 (F = 3.35, P = .0183) RXCOV93 (ns) INS93*RXCOV93 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.0998	1.26	0.0565	0.01	0.19	1.02	1.56
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	0.0538	1.13	0.04	-0.01	0.12	0.98	1.30

Table E.3g 1993 Medical Provider Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(mp_1) W/COV	n = 7539						
INS93 (F = 54.43, P = .0001) RXCOV93 (ns) INS93*RXCOV93 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.3406	2.19	0.0319	0.29	0.39	1.94	2.47
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	0.0199	1.05	0.02	-0.01	0.05	0.97	1.13

Table E.3h 1993 Outpatient Hospital Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(op_1) W/COV	n = 7539						
INS93 (F = 5.34, P = .0011) RXCOV93 (ns) INS93*RXCOV93 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.1742	1.49	0.0515	0.09	0.26	1.23	1.82
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	0.0198	1.05	0.03	-0.04	0.08	0.92	1.19

Table E.3i 1993 Prescription Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(prm_1) W/COV	n = 7539						
INS92 (F = 65.36, P = .0001) **RXCOV92 (F = 20.75, P = .0001)** INS92*RXCOV92 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.4401	2.76	0.0362	0.38	0.50	2.40	3.16
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	0.0889	1.23	0.02	0.05	0.13	1.12	1.34

Table E.3j 1993 Miscellaneous Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(mis_1) W/COV	n = 7539						
INS93 (F = 104.69, P = .0001) RXCOV93 (ns) **INS93*RXCOV93 (F = 3.82, P = .0219)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	-0.4335	0.37	0.0254	-0.48	-0.39	0.33	0.41
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	0.0195	1.05	0.02	-0.01	0.05	0.98	1.11

Table E.3k 1994 Inpatient Hospital Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(ip_1) W/COV	n = 7685						
INS94 (F = 3.60, P = .0130) RXCOV94 (ns) INS94*RXCOV94 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.1579	1.44	0.0565	0.06	0.25	1.16	1.78
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	-0.0350	0.92	0.04	-0.10	0.03	0.80	1.06

Table E.3m 1994 Medical Provider Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(mp_1) W/COV	n = 7685						
INS94 (F = 63.59, P = .0001) RXCOV94 (ns) INS94*RXCOV94 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.3518	2.25	0.0321	0.30	0.40	1.99	2.54
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	0.0114	1.03	0.02	-0.02	0.05	0.95	1.11

Table E.3n 1994 Outpatient Hospital Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(op_1) W/COV	n = 7685						
INS94 (F = 7.65, P = .0001) RXCOV94 (ns) INS94*RXCOV94 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.2203	1.66	0.0516	0.14	0.31	1.37	2.02
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	-0.0387	0.91	0.03	-0.09	0.02	0.80	1.04

Table E.3p 1994 Prescription Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(prn_1) W/COV	n = 7685						
INS92 (F = 76.17, P = .0001) **RXCOV92 (F = 18.70, P = .0001)** INS92*RXCOV92 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.4952	3.13	0.0371	0.43	0.56	2.72	3.60
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	0.0937	1.24	0.02	0.05	0.13	1.13	1.36

Table E.3q 1994 Miscellaneous Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(mis_1) W/COV	n = 7685						
INS94 (F = 73.66, P = .0001) 'RXCOV94 (ns) **INS94*RXCOV94 (F = 5.22, P = .0055)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	-0.3865	0.41	0.0267	-0.43	-0.34	0.37	0.45
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	0.0127	1.03	0.02	-0.02	0.04	0.96	1.10

Table E.3r 1995 Inpatient Hospital Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(ip_1) W/COV	n = 7206						
INS95 (F= 3.04, P = .0278) RXCOV95 (ns) INS95*RXCOV95 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.1628	1.52	0.0616	0.08	0.28	1.21	1.92
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	-0.0662	0.86	0.04	-0.13	0.00	0.74	1.00

Table E.3s 1995 Medical ProviderExpenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(mp_1) W/COV	n = 7206						
INS95 (F = 73.81, P = .0001) RXCOV95 (ns) INS95*RXCOV95 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.4392	2.75	0.0338	0.38	0.49	2.42	3.12
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	-0.0373	0.92	0.02	-0.07	0.00	0.84	1.00

Table E.3t 1995 Outpatient Hospital Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(op_1) W/COV	n = 7206						
INS95 (F = 12.49, P = .0001) RXCOV95 (ns) INS95*RXCOV95 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.2809	1.91	0.0548	0.19	0.37	1.55	2.35
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	-0.0475	0.90	0.04	-0.11	0.01	0.78	1.03

Table E.3u 1995 Prescription Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(pm_1) W/COV	n = 7206						
INS95 (F = 56.12, P = .0001) **RXCOV95 (F = 14.53, P = .0003)** INS95*RXCOV95 (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	0.4375	2.74	0.0391	0.37	0.50	2.36	3.18
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	0.0831	1.21	0.03	0.04	0.12	1.10	1.33

Table E.3v 1995 Miscellaneous Expenditure + 1$, Rx Coverage as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(mis_1) W/COV	n = 7206						
INS95 (F = 43.80, P = .0001) RXCOV95 (ns) **INS95*RXCOV95 (F = 20.69,P = .0001)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0	1					
PRIVATE	-0.3148	0.48	0.0290	-0.36	-0.27	0.43	0.54
PRIVATE no Rx coverage	0.0000	1.00					
PRIVATE Rx Coverage	0.0090	1.02	0.02	-0.02	0.04	0.95	1.10

Appendix F

Table F.1a 1992 Hospital Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1992 (lPAEV + .5) W/COV	n = 6720						
INS92 (ns) GENrx (C.S. 22.92, P = .0001) INS92*GENrx (C.S.31.78, P = .0002)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.0806	1.08	0.07	-0.03	0.19	0.97	1.21
PRIVATE	-0.0016	1.00	0.04	-0.07	0.07	0.93	1.07
PRIVATE + HMO	-0.0829	0.92	0.13	-0.30	0.13	0.74	1.14
MCHMOgenNONE	0.0000	1.00	0.00	0.00	0.00	1.00	1.00
MCHMOgenPOOR	-0.0622	0.94	0.09	-0.21	0.08	0.81	1.09
MCHMOgenFAIR	-0.0114	0.99	0.07	-0.12	0.10	0.88	1.10
MCHMOgenGOOD	-0.0797	0.92	0.09	-0.23	0.07	0.79	1.08
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.0444	1.05	0.03	0.00	0.09	1.00	1.09
PRIVATEgenFAIR	0.1314	1.14	0.02	0.09	0.17	1.10	1.19
PRIVATEgenGOOD	0.0324	1.03	0.03	-0.02	0.09	0.98	1.09
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.0634	1.07	0.18	-0.23	0.36	0.79	1.43
PRIV.+ HMOgenFAIR	0.0300	1.03	0.15	-0.21	0.27	0.81	1.31
PRIV.+ HMOgenGOOD	0.5029	1.65	0.16	0.25	0.76	1.28	2.14

Table F.1b 1992 Medical Provider Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1992 (MPAEV + .5) W/COV	n = 6720						
INS92 (C.S. 133.44, P = .0001) GENrx (C.S. 39.09, P = .0001) INS92*GENrx (C.S. 45.02, P = .0001)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	-0.0309	0.97	0.09	-0.17	0.11	0.84	1.12
PRIVATE	0.1943	1.21	0.05	0.11	0.28	1.12	1.32
PRIVATE + HMO	0.0583	1.06	0.15	-0.19	0.31	0.83	1.36
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.0771	1.08	0.11	-0.11	0.26	0.90	1.30
MCHMOgenFAIR	-0.0676	0.93	0.09	-0.21	0.08	0.81	1.08
MCHMOgenGOOD	-0.4666	0.63	0.14	-0.69	-0.24	0.50	0.79
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.1039	1.11	0.03	0.06	0.15	1.06	1.16
PRIVATEgenFAIR	0.1703	1.19	0.03	0.13	0.21	1.13	1.24
PRIVATEgenGOOD	0.0309	1.03	0.04	-0.03	0.09	0.97	1.10
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.2121	1.24	0.20	-0.12	0.54	0.89	1.72
PRIV.+ HMOgenFAIR	0.0554	1.06	0.17	-0.22	0.33	0.80	1.39
PRIV.+ HMOgenGOOD	0.4767	1.61	0.18	0.18	0.77	1.20	2.17

Table F.1c 1992 Outpatient Hospital Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1992 (OPAEV + .5) W/COV	n = 6720						
INS92 (C.S. 14.18, P = .0027) GENrx (C.S. 37.55, P = .0001) INS92*GENrx (C.S. 19.39, P = .0221)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.1085	1.11	0.12	-0.10	0.31	0.91	1.37
PRIVATE	0.1444	1.16	0.08	0.02	0.27	1.02	1.31
PRIVATE + HMO	-0.2591	0.77	0.27	-0.70	0.18	0.50	1.20
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.2676	1.31	0.15	0.02	0.51	1.02	1.67
MCHMOgenFAIR	0.0991	1.10	0.12	-0.10	0.30	0.90	1.35
MCHMOgenGOOD	-0.0786	0.92	0.17	-0.36	0.20	0.70	1.22
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.1058	1.11	0.04	0.04	0.18	1.04	1.19
PRIVATEgenFAIR	0.2046	1.23	0.20	-0.13	0.54	0.88	1.72
PRIVATEgenGOOD	0.1753	1.19	0.18	-0.11	0.46	0.89	1.59
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.2990	1.35	0.30	-0.19	0.79	0.82	2.21
PRIV.+ HMOgenFAIR	0.9257	2.52	0.93	-0.60	2.45	0.55	11.57
PRIV.+ HMOgenGOOD	0.7593	2.14	0.76	-0.49	2.01	0.61	7.45

Table F.1d 1992 Prescription Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1992 (PMAEV + .5) W/COV	n = 6720						
INS92 (C.S. 14.91, P = .0019) GENrx (C.S. 248.89, P = .0001) INS92*GENrx (C.S. 22.13, P = .0085)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	-0.0428	0.96	0.09	-0.18	0.10	0.83	1.10
PRIVATE	0.0713	1.07	0.05	-0.01	0.15	0.99	1.16
PRIVATE + HMO	-0.0452	0.96	0.16	-0.31	0.22	0.74	1.24
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.2970	1.35	0.10	0.13	0.47	1.13	1.60
MCHMOgenFAIR	0.5108	1.67	0.08	0.37	0.65	1.45	1.91
MCHMOgenGOOD	0.0389	1.04	0.12	-0.16	0.23	0.86	1.26
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.2370	1.27	0.03	0.19	0.28	1.21	1.33
PRIVATEgenFAIR	0.3510	1.42	0.03	0.31	0.39	1.36	1.48
PRIVATEgenGOOD	0.2234	1.25	0.04	0.17	0.28	1.18	1.33
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.3845	1.47	0.20	0.05	0.71	1.06	2.04
PRIV.+ HMOgenFAIR	0.3772	1.46	0.17	0.10	0.66	1.10	1.93
PRIV.+ HMOgenGOOD	0.4507	1.57	0.19	0.14	0.77	1.15	2.15

Table F.1e 1992 Miscellaneous Events ÷ 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1992 (MISCEV + .5) W/COV	n = 6720						
INS92 (ns) GENrx (ns) **INS92*GENrx (C.S. 22.02, P = .0088)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.0752	1.08	0.04	0.02	0.13	1.02	1.14
PRIVATE	0.0133	1.01	0.02	-0.02	0.05	0.98	1.05
PRIVATE + HMO	-0.0101	0.99	0.06	-0.11	0.09	0.89	1.10
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	-0.0896	0.91	0.05	-0.16	-0.02	0.85	0.99
MCHMOgenFAIR	-0.0600	0.94	0.03	-0.11	-0.01	0.89	0.99
MCHMOgenGOOD	-0.0689	0.93	0.05	-0.15	0.01	0.86	1.01
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	-0.0311	0.97	-0.03	0.02	-0.08	1.02	0.92
PRIVATEgenFAIR	0.0061	1.01	0.01	0.00	0.02	1.00	1.02
PRIVATEgenGOOD	0.0096	1.01	0.01	-0.01	0.03	0.99	1.03
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	-0.0718	0.93	-0.07	0.05	-0.19	1.05	0.83
PRIV.+ HMOgenFAIR	0.0179	1.02	0.02	-0.01	0.05	0.99	1.05
PRIV.+ HMOgenGOOD	0.0039	1.00	0.00	0.00	0.01	1.00	1.01

Table F.1f 1993 Inpatient Hospital Events ÷ 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1993 (IPAEV + .5) W/COV	n = 6426						
INS93 (C.S. 10.43, P = .0153) **GENrx (C.S. 12.30, P = .0064)** **INS93*GENrx (C.S. 17.35, P = .0434)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	-0.0632	0.94	0.08	-0.19	0.07	0.82	1.07
PRIVATE	0.0266	1.03	0.04	-0.05	0.10	0.96	1.10
PRIVATE + HMO	0.3098	1.36	0.11	0.13	0.49	1.14	1.63
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.0187	1.02	0.10	-0.15	0.19	0.86	1.21
MCHMOgenFAIR	0.1170	1.12	0.08	-0.01	0.25	0.99	1.28
MCHMOgenGOOD	0.1258	1.13	0.09	-0.02	0.28	0.98	1.32
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.0141	1.01	0.03	-0.03	0.06	0.97	1.06
PRIVATEgenFAIR	0.0782	1.08	0.03	0.04	0.12	1.04	1.13
PRIVATEgenGOOD	0.0702	1.07	0.03	0.01	0.13	1.01	1.14
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	-0.4034	0.67	0.17	-0.69	-0.12	0.50	0.89
PRIV.+ HMOgenFAIR	-0.1338	0.87	0.13	-0.34	0.07	0.71	1.08
PRIV.+ HMOgenGOOD	-0.3474	0.71	0.15	-0.59	-0.11	0.55	0.90

Table F.1g 1993 Medical Provider Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1993 (MPAEV + .5) W/COV	n = 6426						
INS93 (C.S. 226.81, P = .0001) GENrx (C.S. 14.66, P = .0021) INS93*GENrx (C.S. 26.04, P = .0020)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.0177	1.02	0.09	-0.14	0.17	0.87	1.19
PRIVATE	0.2534	1.29	0.05	0.17	0.34	1.18	1.40
PRIVATE + HMO	0.2223	1.25	0.14	0.00	0.45	1.00	1.56
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	-0.1437	0.87	0.12	-0.35	0.06	0.71	1.06
MCHMOgenFAIR	-0.2577	0.77	0.10	-0.42	-0.10	0.66	0.91
MCHMOgenGOOD	-0.2793	0.76	0.12	-0.47	-0.09	0.63	0.91
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.0741	1.08	0.03	0.03	0.12	1.03	1.13
PRIVATEgenFAIR	0.1285	1.14	0.03	0.08	0.17	1.09	1.19
PRIVATEgenGOOD	0.0572	1.06	0.04	0.00	0.12	1.00	1.12
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	-0.0117	0.99	0.19	-0.32	0.30	0.72	1.35
PRIV.+ HMOgenFAIR	0.0953	1.10	0.15	-0.15	0.34	0.86	1.41
PRIV.+ HMOgenGOOD	-0.2160	0.81	0.18	-0.50	0.07	0.60	1.07

Table F.1h 1993 Outpatient Hospital Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1993 (OPAEV + .5) W/COV	n = 6426						
INS93 (C.S. 37.69, P = .0001) GENrx (C.S. 27.02, P = .0001) INS93*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.1968	1.22	0.13	-0.02	0.41	0.98	1.51
PRIVATE	0.1753	1.19	0.08	0.04	0.31	1.05	1.36
PRIVATE + HMO	-0.0547	0.95	0.23	-0.43	0.32	0.65	1.38
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	-0.1777	0.84	0.17	-0.46	0.11	0.63	1.11
MCHMOgenFAIR	-0.2279	0.80	0.13	-0.44	-0.01	0.64	0.99
MCHMOgenGOOD	-0.0679	0.93	0.15	-0.31	0.18	0.73	1.20
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.2399	1.27	0.04	0.17	0.31	1.18	1.37
PRIVATEgenFAIR	0.1607	1.17	0.04	0.09	0.23	1.10	1.26
PRIVATEgenGOOD	0.1045	1.11	0.06	0.01	0.20	1.01	1.22
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.0313	1.03	0.32	-0.49	0.55	0.61	1.73
PRIV.+ HMOgenFAIR	0.1711	1.19	0.25	-0.24	0.59	0.78	1.80
PRIV.+ HMOgenGOOD	-0.0750	0.93	0.28	-0.54	0.39	0.58	1.48

Table F.1I 1993 Prescription Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1993 (PMAEV + .5) W/COV	n = 6426						
INS93 (ns) **GENrx (C.S. 164.39, P = .0001)** INS93*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	-0.0687	0.93	0.09	-0.22	0.08	0.80	1.09
PRIVATE	0.0185	1.02	0.05	-0.06	0.10	0.94	1.10
PRIVATE + HMO	-0.3034	0.74	0.16	-0.57	-0.04	0.57	0.96
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.1994	1.22	0.11	0.01	0.38	1.01	1.47
MCHMOgenFAIR	0.3096	1.36	0.09	0.16	0.46	1.18	1.58
MCHMOgenGOOD	0.2564	1.29	0.26	-0.17	0.68	0.85	1.97
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.2060	1.23	0.21	-0.13	0.54	0.88	1.72
PRIVATEgenFAIR	0.3002	1.35	0.30	-0.19	0.79	0.82	2.21
PRIVATEgenGOOD	0.1866	1.21	0.19	-0.12	0.49	0.89	1.64
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.6134	1.85	0.61	-0.40	1.62	0.67	5.07
PRIV.+ HMOgenFAIR	0.6839	1.98	0.68	-0.44	1.81	0.64	6.10
PRIV.+ HMOgenGOOD	0.5857	1.80	0.59	-0.38	1.55	0.69	4.71

Table F.1J 1993 Miscellaenous Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1993 (MISCEV + .5) W/COV	n = 6426						
INS93 (C.S. 37.93, P = .0001) GENrx (ns) INS93*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.1262	1.13	0.03	0.07	0.18	1.08	1.20
PRIVATE	-0.0059	0.99	0.02	-0.04	0.03	0.96	1.03
PRIVATE + HMO	-0.0526	0.95	0.06	-0.15	0.04	0.86	1.04
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	-0.1708	0.84	0.04	-0.24	-0.10	0.79	0.90
MCHMOgenFAIR	-0.0383	0.96	0.03	-0.09	0.01	0.91	1.01
MCHMOgenGOOD	-0.0749	0.93	0.04	-0.14	-0.01	0.87	0.99
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	-0.0100	0.99	0.01	-0.03	0.01	0.97	1.01
PRIVATEgenFAIR	0.0008	1.00	0.01	-0.02	0.02	0.98	1.02
PRIVATEgenGOOD	-0.0131	0.99	0.02	-0.04	0.01	0.96	1.01
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.0717	1.07	0.08	-0.06	0.20	0.94	1.23
PRIV.+ HMOgenFAIR	0.0429	1.04	0.06	-0.06	0.15	0.94	1.16
PRIV.+ HMOgenGOOD	0.0356	1.04	0.07	-0.08	0.15	0.92	1.16

Table F.1k 1994 Inpatient Hospital Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1994 (IPAEV + .5) W/COV	n = 6535						
INS94 (ns) **GENrx (C.S. 17.84, P = .0005) INS94*GENrx (C.S. 28.58, P = .0008)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	-0.1027	0.90	0.08	-0.23	0.02	0.79	1.02
PRIVATE	0.0700	1.07	0.04	0.00	0.14	1.00	1.15
PRIVATE + HMO	0.2663	1.31	0.10	0.10	0.43	1.11	1.54
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.2991	1.35	0.10	0.14	0.46	1.15	1.58
MCHMOgenFAIR	0.1521	1.16	0.08	0.03	0.28	1.03	1.32
MCHMOgenGOOD	0.2255	1.25	0.09	0.08	0.37	1.09	1.44
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.0513	1.05	0.03	0.01	0.10	1.01	1.10
PRIVATEgenFAIR	0.1003	1.11	0.02	0.06	0.14	1.06	1.15
PRIVATEgenGOOD	-0.0092	0.99	0.03	-0.06	0.04	0.94	1.05
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	-0.3020	0.74	0.15	-0.55	-0.06	0.58	0.94
PRIV.+ HMOgenFAIR	-0.2538	0.78	0.12	-0.45	-0.06	0.64	0.94
PRIV.+ HMOgenGOOD	-0.0296	0.97	0.12	-0.23	0.17	0.79	1.19

Table F.1m 1994 Medical Provider Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1994 (MPAEV + .5) W/COV	n = 6535						
INS94 (C.S. 232.05, P = .0001) GENrx (C.S. 34.46, P = .0001) INS94*GENrx (C.S.23.54, P = .0051)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	-0.2951	0.74	0.10	-0.46	-0.13	0.63	0.88
PRIVATE	0.2071	1.23	0.05	0.12	0.29	1.13	1.34
PRIVATE + HMO	0.1878	1.21	0.13	-0.02	0.39	0.98	1.48
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.3070	1.36	0.13	0.10	0.51	1.11	1.67
MCHMOgenFAIR	0.0165	1.02	0.10	-0.15	0.18	0.86	1.20
MCHMOgenGOOD	-0.0055	0.99	0.12	-0.20	0.19	0.82	1.21
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.1061	1.11	0.03	0.06	0.16	1.06	1.17
PRIVATEgenFAIR	0.1399	1.15	0.03	0.10	0.18	1.10	1.20
PRIVATEgenGOOD	0.0690	1.07	0.03	0.01	0.13	1.01	1.13
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	-0.0702	0.93	0.17	-0.35	0.21	0.71	1.23
PRIV.+ HMOgenFAIR	-0.0021	1.00	0.14	-0.23	0.23	0.79	1.25
PRIV.+ HMOgenGOOD	-0.2733	0.76	0.16	-0.54	-0.01	0.58	0.99

Table F.1n 1994 Outpatient Hospital Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1994 (OPAEV + .5) W/COV	n = 6535						
INS94 (C.S. 17.37, P = .0006) GENrx (C.S. 47.78, P = .0001) INS94*GENrx (C.S. 32.99, P = .0001)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	-0.1003	0.90	0.13	-0.32	0.12	0.73	1.13
PRIVATE	0.0898	1.09	0.08	-0.04	0.22	0.96	1.24
PRIVATE + HMO	0.1559	1.17	0.19	-0.15	0.46	0.86	1.59
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.2342	1.26	0.17	-0.04	0.51	0.96	1.66
MCHMOgenFAIR	0.1378	1.15	0.13	-0.08	0.35	0.93	1.42
MCHMOgenGOOD	0.0588	1.06	0.06	-0.04	0.16	0.96	1.17
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.1150	1.12	0.11	-0.07	0.30	0.93	1.36
PRIVATEgenFAIR	0.1880	1.21	0.19	-0.12	0.50	0.89	1.64
PRIVATEgenGOOD	0.2346	1.26	0.23	-0.15	0.62	0.86	1.86
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	-0.0567	0.94	-0.06	0.04	-0.15	1.04	0.86
PRIV.+ HMOgenFAIR	0.1870	1.21	0.19	-0.12	0.49	0.89	1.64
PRIV.+ HMOgenGOOD	-0.0130	0.99	-0.01	0.01	-0.03	1.01	0.97

Table F.1p 1994 Prescription Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1994 (PMAEV + .5) W/COV	n = 6535						
IN94 (ns) GENrx (C.S. 142.76, P = .0001) INS94*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	-0.0748	0.93	0.09	-0.22	0.07	0.81	1.07
PRIVATE	0.0261	1.03	0.05	-0.05	0.11	0.95	1.11
PRIVATE + HMO	-0.0240	0.98	0.13	-0.24	0.19	0.79	1.21
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.1846	1.20	0.11	0.00	0.36	1.00	1.44
MCHMOgenFAIR	0.3609	1.43	0.08	0.23	0.50	1.25	1.64
MCHMOgenGOOD	0.2184	1.24	0.10	0.06	0.38	1.06	1.46
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.1554	1.17	0.03	0.11	0.20	1.11	1.23
PRIVATEgenFAIR	0.2569	1.29	0.03	0.21	0.30	1.24	1.35
PRIVATEgenGOOD	0.1524	1.16	0.03	0.10	0.21	1.10	1.23
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.1211	1.13	0.17	-0.16	0.40	0.85	1.49
PRIV.+ HMOgenFAIR	0.3388	1.40	0.14	0.11	0.57	1.11	1.77
PRIV.+ HMOgenGOOD	0.3446	1.41	0.15	0.10	0.59	1.10	1.81

Table F.1q 1994 Miscellaneous Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1994 n = 6535
(MISCEV + .5) W/COV

INS94 (ns) GENrx (ns) **INS94*GENrx (C.S. 25.59, P = .0024)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	-0.0788	0.92	0.03	-0.14	-0.02	0.87	0.98
PRIVATE	-0.0355	0.97	0.02	-0.07	0.00	0.93	1.00
PRIVATE + HMO	-0.0033	1.00	0.05	-0.08	0.08	0.92	1.08
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.1179	1.13	0.04	0.04	0.19	1.05	1.21
MCHMOgenFAIR	0.0741	1.08	0.03	0.02	0.13	1.02	1.14
MCHMOgenGOOD	0.1133	1.12	0.04	0.05	0.18	1.05	1.19
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.0064	1.01	0.01	-0.02	0.03	0.98	1.03
PRIVATEgenFAIR	0.0159	1.02	0.01	0.00	0.04	1.00	1.04
PRIVATEgenGOOD	-0.0215	0.98	0.02	-0.05	0.00	0.95	1.00
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	-0.0668	0.94	0.07	-0.18	0.05	0.83	1.05
PRIV.+ HMOgenFAIR	-0.0726	0.93	0.06	-0.17	0.02	0.85	1.02
PRIV.+ HMOgenGOOD	0.0374	1.04	0.06	-0.06	0.14	0.94	1.15

Table F.1r 1995 Inpatient Hospital Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1995 n = 6237
(IPAEV + .5) W/COV

INS95 (ns) **GENrx (C.S. 9.49, P = .0234)** INS95*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.0077	1.01	0.08	-0.12	0.14	0.88	1.15
PRIVATE	0.0233	1.02	0.04	-0.05	0.09	0.95	1.10
PRIVATE + HMO	-0.0876	0.92	0.11	-0.26	0.09	0.77	1.09
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	0.0529	1.05	0.10	-0.11	0.22	0.89	1.24
MCHMOgenFAIR	0.0304	1.03	0.08	-0.10	0.16	0.91	1.17
MCHMOgenGOOD	0.0435	1.04	0.09	-0.10	0.19	0.90	1.21
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.0517	1.05	0.03	0.00	0.10	1.00	1.11
PRIVATEgenFAIR	0.0717	1.07	0.03	0.03	0.11	1.03	1.12
PRIVATEgenGOOD	0.0338	1.03	0.03	-0.02	0.09	0.98	1.09
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.2180	1.24	0.14	-0.02	0.45	0.98	1.57
PRIV.+ HMOgenFAIR	0.1049	1.11	0.11	-0.08	0.29	0.92	1.34
PRIV.+ HMOgenGOOD	0.0878	1.09	0.13	-0.12	0.29	0.89	1.34

Table F.1s 1995 Medical Provider Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1995 (MPAEV + .5) W/COV	n = 6237						
INS95 (C.S. 218.87, P = .0001, GENrx (C.S. 26.87, P = .0001) INS95*GENrx (C.S. 20.45, P = .0153)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	-0.2393	0.79	0.11	-0.41	-0.07	0.66	0.94
PRIVATE	0.1025	1.11	0.05	0.02	0.19	1.02	1.21
PRIVATE + HMO	-0.2853	0.75	0.14	-0.51	-0.06	0.60	0.94
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	-0.2085	0.81	0.15	-0.45	0.04	0.64	1.04
MCHMOgenFAIR	-0.0494	0.95	0.11	-0.22	0.12	0.80	1.13
MCHMOgenGOOD	-0.1946	0.82	0.12	-0.40	0.01	0.67	1.01
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.1543	1.17	0.03	0.10	0.21	1.11	1.23
PRIVATEgenFAIR	0.1287	1.14	0.03	0.08	0.18	1.09	1.19
PRIVATEgenGOOD	0.1087	1.11	0.03	0.05	0.17	1.05	1.18
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.3348	1.40	0.18	0.03	0.63	1.04	1.89
PRIV.+ HMOgenFAIR	0.2298	1.26	0.14	-0.01	0.47	0.99	1.60
PRIV.+ HMOgenGOOD	0.1839	1.20	0.16	-0.08	0.45	0.92	1.56

Table F.1t 1995 Outpatient Hospital Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1995 (OPAEV + .5) W/COV	n = 6237						
INS95 (C.S. 46.58, P = .0001) GENrx (C.S. 21.55, P = .0001) INS95*GENrx (C.S. 21.38, P = .0111)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.0050	1.01	0.13	-0.21	0.22	0.81	1.25
PRIVATE	0.0821	1.09	0.07	-0.04	0.20	0.96	1.22
PRIVATE + HMO	-0.0502	0.95	0.17	-0.34	0.24	0.71	1.27
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	-0.0900	0.91	0.18	-0.38	0.20	0.68	1.22
MCHMOgenFAIR	-0.2027	0.82	0.13	-0.42	0.02	0.66	1.02
MCHMOgenGOOD	-0.2199	0.80	0.16	-0.48	0.04	0.62	1.04
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.1413	1.15	0.05	0.07	0.22	1.07	1.24
PRIVATEgenFAIR	0.1190	1.13	0.04	0.05	0.18	1.05	1.20
PRIVATEgenGOOD	0.1905	1.21	0.05	0.11	0.27	1.12	1.31
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	-0.0687	0.93	0.26	-0.50	0.36	0.61	1.43
PRIV.+ HMOgenFAIR	0.0572	1.06	0.19	-0.25	0.37	0.78	1.45
PRIV.+ HMOgenGOOD	0.4842	1.62	0.20	0.16	0.81	1.18	2.24

Table F.1u 1995 Prescription Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1995 (PMAEV + .5) W/COV	n = 6237						
INS95 (C.S. 140.03, P = .0043) GENrx (C.S. 140.03, P = .0001) INS95*GENrx (C.S. 20.99, P = .0127)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.0196	1.02	0.10	-0.14	0.18	0.87	1.19
PRIVATE	0.1038	1.11	0.05	0.02	0.19	1.02	1.21
PRIVATE + HMO	-0.1104	0.90	0.13	-0.32	0.10	0.72	1.11
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	-0.0385	0.96	0.12	-0.24	0.17	0.78	1.18
MCHMOgenFAIR	0.3674	1.44	0.09	0.22	0.51	1.25	1.67
MCHMOgenGOOD	0.3256	1.38	0.10	0.16	0.49	1.17	1.64
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.1924	1.21	0.03	0.14	0.24	1.15	1.28
PRIVATEgenFAIR	0.2568	1.29	0.03	0.21	0.30	1.24	1.35
PRIVATEgenGOOD	0.1633	1.18	0.03	0.11	0.22	1.11	1.25
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.5170	1.68	0.16	0.25	0.79	1.28	2.19
PRIV.+ HMOgenFAIR	0.5139	1.67	0.13	0.29	0.74	1.34	2.09
PRIV.+ HMOgenGOOD	0.4623	1.59	0.15	0.22	0.70	1.25	2.02

Table F.1v 1995 Miscellaneous Events + 0.5 (Poisson), Rx Generosity as Predictor Variable

GENERAL LINEAR MODEL FOR 1995 (MISCEV + .5) W/COV	n = 6237						
INS95 (C.S. 16.58, P = .0009) GENrx (ns) INS95*GENrx (C.S. 22.84, P = .0066)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
MEDICARE HMO	0.0463	1.05	0.04	-0.02	0.11	0.98	1.12
PRIVATE	-0.0430	0.96	0.02	-0.08	-0.01	0.92	0.99
PRIVATE + HMO	-0.0463	0.95	0.05	-0.13	0.04	0.87	1.04
MCHMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
MCHMOgenPOOR	-0.0387	0.96	0.05	-0.12	0.05	0.88	1.05
MCHMOgenFAIR	-0.0309	0.97	0.04	-0.09	0.03	0.91	1.03
MCHMOgenGOOD	-0.0625	0.94	0.04	-0.14	0.01	0.87	1.01
PRIVATEgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIVATEgenPOOR	0.0216	1.02	0.02	0.00	0.05	1.00	1.05
PRIVATEgenFAIR	0.0159	1.02	0.01	-0.01	0.04	0.99	1.04
PRIVATEgenGOOD	0.0217	1.02	0.02	-0.01	0.05	0.99	1.05
PRIV.+ HMOgenNONE	0.0000	1.00		0.00	0.00	1.00	1.00
PRIV.+ HMOgenPOOR	0.1833	1.20	0.07	0.06	0.30	1.06	1.36
PRIV.+ HMOgenFAIR	0.1359	1.15	0.06	0.04	0.23	1.04	1.26
PRIV.+ HMOgenGOOD	-0.0098	0.99	0.06	-0.12	0.10	0.89	1.10

Table F.2a 1992 Total Health Care Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(tot_1) W/COV	n = 6720						
INS92 (F = 23.17, P=.0001) GENrx (F = 23.55, P= 21.55) INS92*GENrx (F = 3.05, P = .0012)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1493	1.41	0.0311	0.10	0.20	1.25	1.59
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0688	1.17	0.0191	0.04	0.10	1.09	1.26
PRIVATEgenFAIR	0.1372	1.37	0.0186	0.11	0.17	1.28	1.47
PRIVATEgenGOOD	0.1468	1.40	0.0246	0.11	0.19	1.28	1.54

Table F.2b 1992 Inpatient Hospital Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(ip_1) W/COV	n = 6720						
INS92 (ns) **GENrx (F = 3.28, P = .0200)** INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	-0.0259	0.94	0.0849	-0.17	0.11	0.68	1.30
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0885	1.23	0.0520	0.00	0.17	1.01	1.49
PRIVATEgenFAIR	0.1745	1.49	0.0507	0.09	0.26	1.23	1.81
PRIVATEgenGOOD	0.0540	1.13	0.0672	-0.06	0.16	0.88	1.46

Table F.2c 1992 Medical Provider Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(mp_1) W/COV	n = 6720						
INS92 (F = 41.29, P = .0001) GENrx (F = 5.86, P = .0005) INS92*GENrx (F = 2.59, P = .0055)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.2370	1.73	0.0383	0.17	0.30	1.49	1.99
PRIVATEgenNONE	0.0000	1.00		0.00	0.00		
PRIVATEgenPOOR	0.0466	1.11	0.0234	0.01	0.09	1.02	1.22
PRIVATEgenFAIR	0.0965	1.25	0.0228	0.06	0.13	1.15	1.36
PRIVATEgenGOOD	0.0326	1.08	0.0303	-0.02	0.08	0.96	1.21

Table F.2d 1992 Outpatient Hospital Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(op_1) W/COV	n = 6720						
INS92 (F = 4.77, P = .0025) **GENrx (F = 5.04, P = .0017)** INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.2688	1.86	0.0749	0.15	0.39	1.40	2.47
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0789	1.20	0.0459	0.00	0.15	1.01	1.43
PRIVATEgenFAIR	0.1318	1.35	0.0447	0.06	0.21	1.14	1.60
PRIVATEgenGOOD	0.1503	1.41	0.0593	0.05	0.25	1.13	1.77

Table F.2e 1992 Prescription Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(rx_1) W/COV	n = 6720						
INS92 (F = 27.99, P = .0001) **GENrx (F = 167.85, P = .0001)** INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0747	1.19	0.0297	0.03	0.12	1.06	1.33
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.1910	1.55	0.0182	0.16	0.22	1.45	1.66
PRIVATEgenFAIR	0.2985	1.99	0.0177	0.27	0.33	1.86	2.13
PRIVATEgenGOOD	0.4020	2.52	0.0235	0.36	0.44	2.31	2.76

Table F.2f 1992 Miscellaneous Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1992 LOG(mis_1) W/COV	n = 6720						
INS92 (ns) GENrx (ns) INS92*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	-0.0292	0.93	0.0302	-0.08	0.02	0.83	1.05
PRIVATEgenNONE	0.0000	1.00		0.00	0.00		
PRIVATEgenPOOR	-0.0124	0.97	0.0185	-0.04	0.02	0.91	1.04
PRIVATEgenFAIR	0.0075	1.02	0.0180	-0.02	0.04	0.95	1.09
PRIVATEgenGOOD	0.0254	1.06	0.0239	-0.01	0.06	0.97	1.16

Table F.2g 1993 Total Health Care Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(tot_1) W/COV	n = 6426						
INS93 (F = 25.96, P = .0001) GENrx (F = 15.97, P = .0001) INS93*GENrx (F = 2.22, P = .0183)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1295	1.35	0.0307	0.08	0.18	1.20	1.51
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0973	1.25	0.0198	0.06	0.13	1.16	1.35
PRIVATEgenFAIR	0.1175	1.31	0.0186	0.09	0.15	1.22	1.41
PRIVATEgenGOOD	0.1273	1.34	0.0252	0.09	0.17	1.22	1.47

Table F.2h 1993 Inpatient Hospital Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(ip_1) W/COV	n = 6426						
INS93 (F = 3.01, P = .0291) GENrx (F = 2.59, P = .0511) INS93*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0349	1.08	0.0862	-0.11	0.18	0.78	1.50
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.1038	1.27	0.0556	0.01	0.20	1.03	1.57
PRIVATEgenFAIR	0.1526	1.42	0.0522	0.07	0.24	1.17	1.73
PRIVATEgenGOOD	0.0287	1.07	0.0706	-0.09	0.14	0.82	1.40

Table F.2i 1993 Medical ProviderExpenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(mp_1) W/COV	n = 6426						
INS93 (F = 52.45, P = .0001) GENrx (F = 3.76, P = .0103) INS93*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.2408	1.74	0.0366	0.18	0.30	1.52	2.00
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0471	1.11	0.0236	0.01	0.09	1.02	1.22
PRIVATEgenFAIR	0.0793	1.20	0.0221	0.04	0.12	1.10	1.31
PRIVATEgenGOOD	0.0481	1.12	0.0299	0.00	0.10	1.00	1.25

Table F.2j 1993 Outpatient Hospital Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(op_1) W/COV	n = 6426						
INS93 (F = 4.20, P = .0057) GENrx (F = 5.37, P = .0011) INS93*GENrx (F = 2.08, P = .0280)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1120	1.29	0.0755	-0.01	0.24	0.97	1.72
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.1838	1.53	0.0487	0.10	0.26	1.27	1.84
PRIVATEgenFAIR	0.1903	1.55	0.0457	0.12	0.27	1.30	1.84
PRIVATEgenGOOD	0.0300	1.07	0.0618	-0.07	0.13	0.85	1.35

Table F.2k 1993 Prescription Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(rx_1) W/COV	n = 6426						
INS93 (F = 11.33, P = .0001) GENrx (F = 163.24, P = .0001) INS93*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0669	1.17	0.0299	0.02	0.12	1.04	1.31
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.2040	1.60	0.0193	0.17	0.24	1.49	1.72
PRIVATEgenFAIR	0.2721	1.87	0.0181	0.24	0.30	1.75	2.00
PRIVATEgenGOOD	0.4159	2.61	0.0245	0.38	0.46	2.38	2.86

Table F.2m 1993 Miscellaneous Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1993 LOG(mis_1) W/COV	n = 6426						
INS92 (F = 2.90, P = .0336) GENrx (ns) INS93*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	-0.0142	0.97	0.0288	-0.06	0.03	0.87	1.08
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0063	1.01	0.0185	-0.02	0.04	0.95	1.09
PRIVATEgenFAIR	0.0024	1.01	0.0174	-0.03	0.03	0.94	1.07
PRIVATEgenGOOD	-0.0037	0.99	0.0235	-0.04	0.04	0.91	1.08

Table F.2n 1994 Total Health Care Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(tot_1) W/COV	n = 6535						
INS94 (F = 20.45, P = .0001) **GENrx (F = 19.89, P = .0001)** **INS94*GENrx (F= 3.25, P = .0006)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1174	1.31	0.0311	0.07	0.17	1.16	1.47
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0627	1.16	0.0203	0.03	0.10	1.07	1.25
PRIVATEgenFAIR	0.1039	1.27	0.0181	0.07	0.13	1.19	1.36
PRIVATEgenGOOD	0.0948	1.24	0.0232	0.06	0.13	1.14	1.36

Table F.2p 1994 Inpatient Hospital Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(ip_1) W/COV	n = 6535						
INS94 (ns) GENrx (ns) **INS94*GENrx (F = 2.16, P = .0216)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1207	1.32	0.0884	-0.02	0.27	0.94	1.85
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0380	1.09	0.0577	-0.06	0.13	0.88	1.36
PRIVATEgenFAIR	0.1004	1.26	0.0515	0.02	0.19	1.04	1.53
PRIVATEgenGOOD	-0.0462	0.90	0.0660	-0.15	0.06	0.70	1.15

Table F.2q 1994 Medical Provider Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(mp_1) W/COV	n = 6535						
INS94 (P = .0001) **GENrx (P = .0001)** INS94*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.2004	1.59	0.0371	0.14	0.26	1.38	1.83
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0664	1.17	0.0243	0.03	0.11	1.06	1.28
PRIVATEgenFAIR	0.0925	1.24	0.0216	0.06	0.13	1.14	1.34
PRIVATEgenGOOD	0.0343	1.08	0.0277	-0.01	0.08	0.97	1.20

Table F.2r 1994 Outpatient Hospital Expenditure ÷ $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(op_1) W/COV	n = 6535						
INS94 (F = 3.09, P = .0261) **GENrx (F = 5.01, P = .0018)** **INS94*GENrx (F = 3.57, P = .0002)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1343	1.36	0.0770	0.01	0.26	1.02	1.82
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.1154	1.30	0.0503	0.03	0.20	1.08	1.58
PRIVATEgenFAIR	0.1433	1.39	0.0449	0.07	0.22	1.17	1.65
PRIVATEgenGOOD	0.0178	1.04	0.0575	-0.08	0.11	0.84	1.30

Table F.2s 1994 Prescription Expenditure ÷ $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(rx_1) W/COV	n = 6535						
INS94 (F = 8.04, P = .0001) **GENrx (F = 150.45, P = .0001)** INS94*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0642	1.16	0.0310	0.01	0.12	1.03	1.30
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.1535	1.42	0.0202	0.12	0.19	1.32	1.54
PRIVATEgenFAIR	0.2186	1.65	0.0181	0.19	0.25	1.54	1.77
PRIVATEgenGOOD	0.3799	2.40	0.0231	0.34	0.42	2.20	2.62

Table F.2t 1994 Miscellaneous Expenditure ÷ $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1994 LOG(mis_1) W/COV	n = 6535						
INS94 (ns) GENrx (ns) INS94*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	-0.0213	0.95	0.0331	-0.08	0.03	0.84	1.08
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0016	1.00	0.0216	-0.03	0.04	0.92	1.09
PRIVATEgenFAIR	0.0142	1.03	0.0193	-0.02	0.05	0.96	1.11
PRIVATEgenGOOD	-0.0220	0.95	0.0247	-0.06	0.02	0.87	1.04

Table F.2u 1995 Total Health Care Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(tot_1) W/COV	n = 6237						
INS95 (F = 22.47, P = .0001) **GENrx (F = 26.03, P = .0001)** INS95*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1060	1.28	0.0323	0.05	0.16	1.13	1.44
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.1296	1.35	0.0223	0.09	0.17	1.24	1.47
PRIVATEgenFAIR	0.1103	1.29	0.0190	0.08	0.14	1.20	1.39
PRIVATEgenGOOD	0.1580	1.44	0.0234	0.12	0.20	1.32	1.57

Table F.2v 1995 Inpatient Hospital Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(ip_1) W/COV	n = 6237						
INS95 (ns) **GENrx (F = 3.71, P = .0111)** INS95*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0407	1.10	0.0918	-0.11	0.19	0.78	1.56
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.1473	1.40	0.0634	0.04	0.25	1.10	1.78
PRIVATEgenFAIR	0.1611	1.45	0.0541	0.07	0.25	1.18	1.78
PRIVATEgenGOOD	0.0261	1.06	0.0665	-0.08	0.14	0.83	1.37

Table F.2w 1995 Medical Provider Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(mp_1) W/COV	n = 6237						
INS92 (F = 53.58, P = .0001) **GENrx (F = 6.86, P = .0001)** **INS95*GENrx (F = 2.03, P = .0327)**	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.2338	1.71	0.0388	0.17	0.30	1.48	1.98
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0983	1.25	0.0268	0.05	0.14	1.13	1.39
PRIVATEgenFAIR	0.0721	1.18	0.0229	0.03	0.11	1.08	1.29
PRIVATEgenGOOD	0.0807	1.20	0.0281	0.03	0.13	1.08	1.34

Table F.2x 1995 Outpatient Hospital Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(op_1) W/COV	n = 6237						
INS95 (F = 6.65, P = .0002) GENrx (F = 3.03, P = .0282) INS95*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.1966	1.57	0.0783	0.07	0.33	1.17	2.12
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.1168	1.31	0.0541	0.03	0.21	1.07	1.61
PRIVATEgenFAIR	0.0940	1.24	0.0462	0.02	0.17	1.04	1.48
PRIVATEgenGOOD	0.1281	1.34	0.0568	0.03	0.22	1.08	1.67

Table F.2y 1995 Prescription Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(rx_1) W/COV	n = 6237						
INS95 (F= 10.23, P = .0001) GENrx (F = 188.84, P = .0001) INS95*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	0.0489	1.12	0.0315	0.00	0.10	0.99	1.26
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.2053	1.60	0.0217	0.17	0.24	1.48	1.74
PRIVATEgenFAIR	0.2562	1.80	0.0186	0.23	0.29	1.68	1.94
PRIVATEgenGOOD	0.4500	2.82	0.0228	0.41	0.49	2.58	3.07

Table F.2z 1995 Miscellaneous Expenditure + $1, Rx Generosity as Predictor Variable

ANOVA FOR UNBALANCED 1995 LOG(mis_1) W/COV	n = 6237						
INS95 (ns) GENrx (ns) INS95*GENrx (ns)	Model Coefficient Estimate	Estimate Converted	SE of Estimate	CI Lower	CI Upper	CI Lower Converted	CI Higher Converted
MEDICARE only	0.0000	1.00					
PRIVATE	-0.0217	0.95	0.0363	-0.08	0.04	0.83	1.09
PRIVATEgenNONE	0.0000	1.00					
PRIVATEgenPOOR	0.0281	1.07	0.0251	-0.01	0.07	0.97	1.17
PRIVATEgenFAIR	0.0305	1.07	0.0214	0.00	0.07	0.99	1.16
PRIVATEgenGOOD	0.0234	1.06	0.0263	-0.02	0.07	0.96	1.17

Appendix F.3

Control Variables

adl = activities of daily living

age

cd = number of chronic diseases

census

gh = self-perceived general health

iadl = instrumental activities of daily living

income

marital = marital status

sex

Table F.3a Significant Control Variables in Rx Generosity Models (Events + 0.5), By Year and Service Category

Year	Total	Inpatient	Medical Provider	Outpatient	Rx	Miscellaneous
1992	n/a	age, census, sex,marital, adl, iadl, cd, gh, income	age, census, race, metro, adl, iadl, cd, gh, income	age, census, sex, adl, iadl, cd, gh, income	age, census, race, sex, metro, adl, iadl, cd, gh, income	age, census, sex, marital, adl, iadl, cd, gh
1993	n/a	age, census, sex, marital, adl, iadl, cd, gh, income	age, census, race, metro, adl, iadl, cd, gh, income	age, census, sex, metro, adl, iadl, cd, gh, income	age, census, sex, metro, marital, adl, iadl, cd, gh	age, census, marital, adl, iadl, gh
1994	n/a	age, census, sex, marital, adl, iadl, cd, gh	age, census, race, metro, marital, adl, iadl, cd, gh, income	age, census, sex, metro, adl, iadl, cd, gh, income	age, census, sex, metro, adl, iadl, cd, gh	age, metro, marital, adl, gh
1995	n/a	age, census, marital, adl, iadl, cd, gh	age, census, race, metro, adl, iadl, cd, gh, income	age, census, metro, adl, iadl, cd, gh, income	age, census, race, sex, metro, adl, iadl, cd, gh, income	age, census, sex, marital, adl, iadl, cd

Appendix F.3

Table F.3b Significant Control Variables in Rx Generosity Models (Expenditure + $1), By Year and Service Category

Year	Total	Inpatient	Medical Provider	Outpatient	Rx	Miscellaneous
1992	age, race, census, metro, adl, iadl, cd, gh, income	age, sex, marital, adl, iadl, cd, gh	age, race, census, metro, adl, iadl, cd, gh, income	age, census, marital, adl, iadl, cd, gh, income	age, race, sex, census, metro, adl, iadl, cd, gh, income	age, sex, adl, iadl
1993	age, race, sex, census,metro, adl, iadl, cd, gh, income	age, sex, census, marital, adl, iadl, cd, gh	age, race, sex, census, metro, marital, adl, iadl, cd, gh, income	age, census, metro, adl, iadl, cd, gh, income	age, race, sex, census, marital, adl, iadl, cd, gh, income	age, marital, adl, iadl, gh
1994	age, race, sex, census, metro, adl, iadl, cd, gh, income	age, census, adl, iadl, cd, gh	age, race, census, metro, adl, iadl, cd, gh, income	age, census, metro, adl, iadl, cd, gh, income	age, sex, census, marital, adl, iadl, cd, gh, income	age, marital, adl
1995	age, race, census, metro, adl, iadl, cd, gh, income	age, sex, census, marital, adl, iadl, cd, gh	age, race, sex, census, metro, adl, iadl, cd, gh, income	age, census, metro, adl, iadl, cd, gh, income	age, race, sex, census, adl, iadl, cd, gh, income	age, sex, census, adl, iadl

Appendix G

UNIVERSITY OF MINNESOTA

Twin Cities Campus *Research Subjects' Protection Programs*

Institutional Review Board: Human Subjects Committee (IRB)
Institutional Animal Care and Use Committee (IACUC)

February 26, 1998

Margaret B. Artz
Pharmacy Practice
7-178 HSUF
Minneapolis Campus

RE: "The Economic Impact of Outpatient Prescription Drug Coverage for Medicare Beneficiaries in Terms of Total and Specific Health Care Expenditure and Service Use"

Human Subjects Code Number: **9802E00086**

Dear Ms. Artz:

The IRB: Human Subjects Committee determined that the referenced study is exempt from review under federal guidelines 45 CFR Part 46.101(b) category #4 EXISTING DATA; RECORDS REVIEW; PATHOLOGICAL SPECIMENS.

The code number above is assigned to your research. That number and the title of your study must be used in all communication with the IRB office.

Upon receipt of this letter, you may begin your research. If you have questions, please call the IRB office at (612) 626-5654.

The IRB wishes you success with this research.

Sincerely,

Carol Siegel
Assistant Director

CS/med

Definitions for terms in Glossary are from references: (HCFA, 1999; Olin, Liu, & Merriman, 1999)

Activities of daily living (ADLs): Activities of daily living are activities related to personal care and include difficulty bathing/showering, walking, dressing, getting in and out of a bed or chair, using a toilet, and eating. The range for the number of ADLs was 0 to 6.

Capitation payment: This is a pre-determined, per-member and per-month payment from the Medicare program to a health maintenance organization. This payment finances all the necessary Medicare-covered services. The amount paid for each Medicare enrollee does not depend on the actual cost of services provided to the individual.

Chronic conditions: Chronic conditions consist of hardening of the arteries, hypertension, myocardial infarction, angina/congestive heart disease, other heart conditions, stroke/brain hemorrhage, diabetes, rheumatoid arthritis, arthritis, Alzheimer's, mental disorders, osteoporosis, parkinsons, emphysema, skin cancer, and cancer/tumor. The question about a condition was coded as a positive response if the subject was ever diagnosed with the condition. The range for number of chronic diseases was 0 to 6, where 6 represents six or more chronic diseases.

End-stage renal disease (ESRD): End-stage renal disease is an irreversible kidney impairment that requires dialysis or kidney transplantation to maintain life. Any subject placed in this category receives special Medicare coverage and was eliminated from this study.

Facility expenditure: Facility expenditures include expenses related to a stay in a long-term care facility. Types of long-term facilities include licensed nursing homes, skilled nursing homes, intermediate care facilities, distinct long-term care units in a hospital complex, mental health facilities and centers, assisted and foster care homes, and institutions for the mentally retarded and developmentally disabled

General health status: This measure is a self-perceived assessment of the subject's general health compared to other people of the same age.

Glossary, continued

Health maintenance organization (HMO): An HMO provides or arranges for the provision of health care services to enrolled persons for a fixed capitation payment. Medicare HMOs are HMOs that contract with Medicare to provide services to Medicare beneficiaries and include risk HMOs, cost HMOs, and health care prepayment plans (HCPPs). Risk HMOs are paid on a capitation basis to provide Part A/Part B services.
Cost HMOs are paid on a "reasonable cost basis" to provide Part A/Part B services. HCPPs are paid on a "reasonable cost basis" to provide Part B services.

Hospice expenditure: Hospice expenses are narrowly defined in the MCBS public files. Hospice care is limited to Medicare-covered services for terminally ill subjects who have elected to receive hospice care rather than standard Medicare benefits. These hospice services include medical, nursing, counseling, and supportive services. Prescribed medicines and inpatient respite care requires some copayment by the beneficiary.

Income: Income is for the study calendar year. It is the income of the subject, if single, or for the subject and spouse, if the subject is married in the calendar year. Income reflects all sources of income from jobs, pensions, Social Security benefits, Railroad Retirement and other retirement income, interest, and dividends. In this study, the income range variable was used instead of the actual reported income.

Inpatient hospital expenditure: Inpatient hospital expenses include expenses charged during a single admission and include charges for an emergency room visit if the visit resulted in a hospital admission.

Institutional expenditure: These are expenses incurred during an institutional stay (other than inpatient hospital or long-term care). These stays are considered short-term stays and usually occur in skilled nursing facilities.

Instrumental activities of daily living (IADLs): These are activities related to independent living and include difficulty in preparing meals, managing money, shopping for groceries or personal items, performing light housework, writing, and using a telephone. The range for the number of ADLs was 0 to 6.

Glossary, continued

Insurance coverage: There was a variety of insurance descriptions contained in the MCBS health insurance and administrative files. For the purposes of this study, there were five mutually-exclusive insurance coverages: Medicare only, private with no HMO, private with HMO, Medicare HMO, and Medicaid.

Medical provider expenditure: These are expenses incurred for a variety of medical services, equipment and supplies. These expenses include medical doctor and health practitioner visits, diagnostic laboratory and radiology, medical and surgical services, durable medical equipment and non-durable supplies. Health practitioners include audiologists, optometrists, chiropractors, podiatrists, mental health professionals, therapists, nurses, paramedics, and physician's assistants.

Outpatient expenditure: These are expenses incurred at outpatient hospital facilities, including emergency room visits which do not result in an inpatient hospital admission. Outpatient services are received at a separate visit to any part of an outpatient department or outpatient clinic at a hospital. The expenditures may represent those from a single visit, from multiple procedures or services within one visit or be multiple visits billed together.

Total health care expenditure: This expense is the sum of specific expenditures, i.e., inpatient, outpatient, medical provider, prescription, and miscellaneous. Total health care expenditure does not include dental or home health care expenses.

Out-of-pocket expenditure for prescriptions: These expenses are payments to providers made by the subject or by another person on behalf of the subject for prescriptions. These payments may represent coinsurance amounts, copayments, deductibles, or complete payment of a medicine.

Prescription medicine expenditure: This expense represents the total cost of a single prescription received by a subject. This expense does not include prescription medicines received during an inpatient hospital stay.

Race: Race is recorded in the MCBS as interpreted by the subject. For this study, race was recoded to reflect three levels, i.e., white non-Hispanic, black non-Hispanic, and other.

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